HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1936.

Vol. V, Part 4.

275—Acta Medica Scandinavica. Supplementum.

a. HERNBERG, C. A., 1936.—" Concerning the anti-anaemic influence of the gastric juice in pernicious botriocephalus anaemia." 78, 582-587.

(275a) From a study of two cases of anaemia associated with an infection with *Dibothriocephalus latus* Hernberg finds that there is a marked deficiency in the secretion of gastric juice. In one of the patients there was a distinct reticulocyte reaction up to 4·8%, in 8 days, after a first dose of gastric juice. R.T.L.

276—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

a. ANON, 1936.—" Stomach worms in sheep. (Parasitic gastritis)." No. 275, 4 pp.

277—American Journal of Hygiene.

a. HEADLEE, W. H., 1936.—" The epidemiology of human ascariasis in the metropolitan area of New Orleans, Louisiana." 24 (3), 479-521.

b. BARLOW, C. H., 1936.—" Is there dermatitis in Egyptian schistosomiasis ? " 24 (3), 587-599.

(277b) The application of Bilharzia cercariae of human origin to the skin of 43 persons gave a dermatitis in every case. This was limited to the area actually exposed. In some the itching was slight, in others severe, while none occurred in one case. Barlow notes that the cercariae emerge from the snails between 9 a.m. and noon. Only persons whose occupation requires many hours of work in water show severe dermatitis under natural conditions. R.T.L.

278—American Journal of the Medical Sciences.

a. KILDUFFE, R. A., 1936.—" Eosinophilia and skin tests in the diagnosis of trichinosis." 192 (5), 689-693.

(278a) Commenting on criticisms made on his earlier observations on trichinosis [see Helm. Abs., Vol. II, No. 306a] Kilduffe repeats that an eosinophilia, in the presence of other significant symptoms, is a reliable suggestion in the clinical diagnosis of trichinosis. Owing to the elaborate technique necessary for skin tests, these are not always practicable while eosinophilia demonstration is simple. P.A.C.

279—American Journal of Tropical Medicine.

a. TSUCHIYA, H. & RECTOR, L. E., 1936.—" Studies on intestinal parasites among wild rats caught in Saint Louis." **16** (6), 705-714.

b. CANAVAN, W. P. N., 1936.—" A case of echinococcosis in Oklahoma. Report on discovery of hydatid cyst of *Echinococcus granulosus* (Batsche, 1786) in man." **16** (6), 715-716.

(279a) Tsuchiya & Rector have studied the parasitic fauna of 98 *Mus norvegicus* and 2 *Mus rattus* caught at random from 16 different localities in the city of Saint Louis, Missouri. The distribution and incidence of the various protozoa and helminths found are tabulated. *Cysticercus fasciolaris* was present in 72, and *Hepaticola hepatica* in 23 livers. The intestinal helminths were *Hymenolepis nana*, *H. diminuta*, *Strongyloides ratti*, *Syphacia obvelata*, *Trichuris muris* and *Trichinella spiralis*; the last-named species occurred in 7 rats in one of which adults only were found in the small intestine, there being no larvae detectable elsewhere. The authors conclude, from their study, that wild rats of St. Louis are probably an important factor in human infestations with *H. nana* and *H. diminuta* and that they have an indirect bearing in the transmission of *T. spiralis*, via swine, to man. J.N.O.

280—American Midland Naturalist.

a. GUBERLET, J. E., 1936.—" Two new ectoparasitic trematodes from the sting ray *Myliobatus californicus*." **17** (6), 954-964.

(280a) From *Myliobatus californicus* Guberlet describes two ectoparasitic trematodes named *Epibdella pacifica* n. sp. and *Calinella myliobati* n. sp. R.T.L.

281—Anales del Instituto de Biología.

a. CABALLERO, E., 1936.—" Parasitos intestinales en los niños de Actopan, Hgo." **7** (2/3), 373-384.

282—Annales de Parasitologie Humaine et Comparée.

a. BRUMPT, E., 1936.—" Action des hôtes définitifs sur l'évolution et sur la sélection des sexes de certains helminthes hébergés par eux. Expériences sur des schistosomes." **14** (6), 541-551.

b. BRUMPT, E., 1936.—" Contribution à l'étude de l'évolution des paramphistomidés. *Paramphistomum cervi* et cercaire de *Planorbis exustus*." **14** (6), 552-563.

(282a) Brumpt briefly reviews authenticated instances of the influence of different species of host upon the size and rate of development of parasites, and also upon the parasite's sex ratio. Some experiments of his own with *Schistosoma bovis* tend to show that in guinea-pigs and mice males predominate over females. In monkeys (*Macacus* spp.) and rats the worms fail to develop to full maturity, and no eggs are produced. B.G.P.

(282b) Looss worked out the first part of the life-cycle of *Paramphistomum cervi*. Brumpt has now completed this by feeding metacercariae

to a goat and a sheep : a guinea-pig failed to become infected. The whole cycle, stages of which are illustrated, requires nearly 160 days. Cercariae commonly found in *Planorbis exustus* in French Indo-China form cysts which are larger than those of *P. cervi* and may belong to a distinct species. B.G.P.

283—Annales de la Société Belge de Médecine Tropicale.

a. BERGHE, L. VAN DEN, 1936.—" Note préliminaire sur la localisation extranodulaire de *Onchocerca volvulus* chez l'homme." **16** (4), 549-551.

(283a) In two African natives with Onchocerca nodules Berghe has demonstrated, post mortem, the presence of a few adult females free in the connective tissues. R.T.L.

284—Annali d'Igiene.

a. MARIANI, G. & LOPRESTI, A., 1936.—" I parassiti intestinali della popolazione bianca in Somalia." **46** (11), 481-496.

285—Annals of Tropical Medicine and Parasitology.

a. BAYLIS, H. A., 1936.—" On the nomenclature and synonymy of the nematode *Setaria labiato-papillosa*." **30** (3), 293-298.
b. MACFIE, J. W. S., 1936.—" A note on the prevalence of disease in Northern Ethiopia." **30** (3), 303-304.
c. AZIM, M. A., 1936.—" On the life-history of *Lecithodendrium pyramidum* Looss, 1896, and its development from a Xiphidocercaria, *C. pyramidum* sp. nov., from *Melania tuberculata*." **30** (3), 351-354.

(285a) Baylis discusses the nomenclatural standing of *Filaria* (=*Setaria*) *labiato-papillosa* usually assigned to Alessandrini, 1838 but of which the original cannot be traced, and concludes that the name *F. cervi*, given by Rudolphi in 1819, has priority and may be legitimately used. Baylis reviews the species named *S. bidentata* (Molin, 1858), *F. digitata* v. Linstow, 1906, *S. marshalli* Boulenger, 1921, *S. nudicauda* Ortlepp, 1924, *S. altaica* Rajewsky, 1928, *S. cervi* Maplestone, 1931 and *S. buxi* and considers them to be synonyms of *Setaria cervi* (Rud., 1819). R.T.L.

(285b) Of 989 consecutive unselected cases treated at Waldia in one week in 1936 by the British Red Cross Unit in Abyssinia 133 were cases of *Taenia saginata*. R.T.L.

(285c) Four different kinds of cercariae have been found by Azim in snails collected in the Dakhla Oasis. Of these a Xiphidocercaria of Sewell's " Virgula " group is described in detail and was found encysted in *Anopheles pharoensis* and *A. multicolor*. The cysts passed from the larva to the pupa and ultimately to the imago without apparent change. The morphology of the metacercaria suggested that it belonged to the Lecithodendrinae. Large numbers of *Lecithodendrium pyramidum* Looss, 1896 were found in the bats *Vesperugo kuhli* and in *Rhinolphus euryale*. R.T.L.

286—Annual Report of the Agricultural and Horticultural Research Station, Long Ashton, 1935.

a. OGILVIE, L. & THOMPSON, C. R., 1936.—" A strawberry disease resembling the American ' Crimp '." pp. 76-79.
b. WALTON, C. L., OGILVIE, L. & BRIAN, P. W., 1936.—" The effect of calcium cyanamide on pea and potato ' sickness '." pp. 91-97.

(286a) Ogilvie & Thompson describe a disease of strawberry plants closely resembling American " crimp " occurring chiefly in the variety Madame Kooi in the Cheddar district. The leaflets are markedly "ballooned" with edges curled downwards. They are brittle and darker green than healthy leaves. Large pale green areas may develop on them which later turn brown and necrotic. *Aphelenchoides fragariae* was found amongst the heart leaves of the buds and in the brown areas of the leaves and it is suggested that this nematode is probably responsible for the symptoms observed. Details are given of an experiment in which the disease was set up in runners which had been hot-water treated. The paper is illustrated with two very good photographs. T.G.

(286b) Walton, Ogilvie & Brian describe experiments with calcium cyanamide on land infested with the pea- and potato-strains of *Heterodera schachtii*. Applications at the rate of ½ cwt. per acre were followed by almost normal yields in all cases, although the number of cysts on the roots of the plants appeared to be unaffected. Applications of quicklime and urea in quantities equivalent to those produced by the decomposition of 10 cwt. per acre of calcium cyanamide, viz., 6·3 cwt. per acre quicklime and 4·4 cwt. per acre urea, produced a greater yield of ~~peas~~ than the calcium cyanamide dressing. It is concluded that good results from applications of calcium cyanamide are due to the increased nitrogen supply rather than any lethal chemical effect on the eelworm. M.J.T.

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potatoes

287—Archiv für Experimentelle Pathologie und Pharmakologie.

a. DIEHL, F. & SCHWOERER, P., 1936.—" Allergie der menschlichen Haut gegen *Ascaris lumbricoides*." **183** (1), 1-8.

(287a) Diehl & Schwoerer have demonstrated skin sensitivity to Ascaris antigen in non-carriers as well as in allergic and non-allergic carriers. They believe that the reaction after the use of undiluted antigen is not of an allergic nature but is rather an unspecific foreign protein reaction, but the wheal and delayed reaction following the use of antigen in high dilution probably indicates a specific response. P.A.C.

288—Archiv für Klinische Chirurgie.

a. SORGE, F., 1936.—" Cysticerkose im Verkalkungszustand." **185**, 31-37.

(288a) Sorge presents two case reports of human calcified Cysticercosis cellulosae, both from skeletal muscles and one with, in addition, a single (visible) cerebral cyst which was associated with epileptiform symptoms. B.G.P.

289—Archiv für Schiffs- und Tropen-Hygiene.

a. OTTO, J. H. & TSCHAN TSCHING JI, 1936.—" Massenansammlung von Eiern des Leberwurms *Opisthorchis sinensis* in der Gallenblase bei Verschluss der Papilla Vateri." **40** (11), 516-517.

(289a) This is a report of a clonorchiasis case with a completely obstructed bile duct. At operation bile was obtained from the gall bladder containing over one million Clonorchis eggs per 10 c.c. B.G.P.

290—Archives des Maladies de l'Appareil Digestif et des Maladies de la Nutrition.

a. FEISSLY, R., 1936.—" Un cas de parasitisme humain par le *Fasciola hepatica*." **26**, 324-330.
b. TALICE, R. V., 1936.—" Le tétrachlorure de carbone anthelminthique de choix contre le ver solitaire." **26**, 576-581.

(290b) Talice has used carbon tetrachloride in the treatment of *Taenia saginata* and *T. solium*. Of 67 adults treated, 65 permanent cures were achieved. He attributes the success of the treatment to the following clinical precautions. A week before treatment patients are kept on a carbohydrate and milk diet and given a daily dose of calcium chloride solution. The dose of 3 to 4 c.c. of pure carbon tetrachloride is followed immediately by 35 to 40 grams of magnesium sulphate and the patient is kept lying down. If defaecation has not occurred by the third hour, saline laxatives and an enema are administered. The treatment is followed by a light hydrocarbon diet. K.S.

291—Archivio Italiano di Scienze Mediche Coloniali.

a. POLAZZO, M. Q., 1936.—" Il primo caso di anchilostomiasi riscontrato in Cirenaica." **17** (10), 628-633.
b. TALAMONTI, L., 1936.—" Ricerche sul parassitismo intestinale dei bambini della Provincia di Modena." **17** (11) 690-697.

(291a) Recording hookworm in an immigrant into Cirenaica from Egypt, Polazzo considers that such cases should be detected and treated lest the disease become endemic. B.G.P.

(291b) Talamonti reports on the helminthic and protozoal intestinal parasites of 150 children in Modena. Trichuris (90 cases) and Ascaris (59) were the commonest parasites, and only 35 were parasite-free. The absence of both species of Taenia and of hookworm is stressed, the latter being common in adults locally. B.G.P.

292—Archivos Internacionales de la Hidatidosis.

a. ARMAND UGÓN, C. V., 1936.—" Neumotórax hidático." **1** (2), 143-216.
b. ARMAND UGÓN, C. V., 1936.—" Equinococosis pleural secundaria." **1** (2), 219-226.
c. PIAGGIO BLANCO, R. & GARCÍA CAPURRO, F., 1936. " Equinococosis pulmonar estudio clínico-broncográfico de sus diferentes formas." **1** (2), 227-257.

d. CASTIGLIONI ALONSO, H., 1936.—" Quiste hidático del hígado abierto en la vena cava inferior." **1** (2), 267-271.
e. LEMAIRE, G., 1936.—" L'echinococcose en Algerie." **1** (2), 279-280.
f. LEMAIRE, G., 1936.—" Contribution à la biologie expérimentale de l'échinococcose." **1** (2), 281-290.
g. LEMAIRE, G., 1936.—" Les tests biologiques. (Étude critique)." **1** (2), 291-300.
h. BERAMENDI, E. M., 1936.—" Informe sobre contaminación de la hidatidosis en las barracas de frutos del país." **1** (2), 303-308.
i. PÉREZ FONTANA, V., 1936.—" Sobre el censo de perros en el territorio de la República." **1** (2), 309-310.

(292f) In discussing certain aspects of the biology of hydatid, Lemaire believes that the albumins in the fluid are responsible for the cachexia often associated with hydatid in man. These albumins have an important part in the production of experimental anaphylaxis. He discusses anaphylaxis in the guinea-pig and the closely related spontaneous allergic responses in man associated with the presence of hydatid. P.A.C.

(292g) Lemaire discusses the use and specificity of eosinophilia, precipitation and of the Praussnitz-Küstner (i.e., passive allergy) reactions in the diagnosis of hydatid. P.A.C.

293—Beiträge zur Klinik der Tuberkulose.

a. SILVEIRA, J., 1936.—" Das Problem der Lungenform der amerikanischen Schistosomose und ihre Beziehungen zur Lungentuberkulose." **88** (2), 166-175.

(293a) Silveira discusses an interesting form of Schistosomiasis mansoni, met with in Brazil, in which both eggs and adults occur in the lungs, causing symptoms liable to confusion with those of phthisis. A case report is added by way of example. B.G.P.

294—Berliner Tierärztliche Wochenschrift.

a. STROH, G., 1936.—" Lungenwurmfunde bei 100 Gemsen und ihre krankmachende Bedeutung." **1936** (43), 696-699.

(294a) Stroh has found one or more of the following lungworms in 98 out of 100 chamois from Germany and Austria: *Protostrongylus rupicaprae*, *P. austriacus*, *Neostrongylus linearis*, *Muellerius capillaris* and *M. tenuispiculatus*. The lung-worms are more numerous in sick than in healthy chamois, and must be considered as definitely pathogenic both in young animals and, when present in large numbers, in fully grown ones. B.G.P.

295—Bi-Monthly Bulletin of the Ohio Agricultural Experiment Station.

a. WILSON, J. D., 1936.—" Root-knot nematode in muck soils with reference to soil temperature and various treatments." **21** (178), 21-25.

(295a) Wilson reports increasing damage to onions and celery in Ohio caused by *Heterodera marioni*. The disease is most severe in soil treated with marl and clay. The average *p*H value, 6·2, for such treated soils was

higher than that of untreated soils. Formaldehyde-dust and sulphur were more effective than lime in reducing nematode damage and further experiments showed that formaldehyde was also more effective than carbon disulphide. The soil temperatures most favourable for root-knot development on tomato, cucumber, lettuce and celery varied from 24° to 28°C., a slightly lower temperature produced the maximum gall development on onions. M.J.T.

296—Biochemische Zeitschrift.

a. KOLLATH, W. & ERHARDT, A., 1936.—"Lebensdauer, Redoxlage und Fuadinwirkung bei Opisthorchis in vitro." 287 (3/4), 287-288.

(296a) Kollath & Erhardt have demonstrated that the longevity *in vitro* of the trematode *Opisthorchis tenuicollis felineus* can be correlated with the redox potential of the environment. The experiments were carried out in neutral redox staining solutions under aerobic conditions at 37°C. The optimum longevity was 40 days at a redox potential of −0·081 in K-indigotrisulphonate. This compared with a longevity of 21 days in Ringer's solution. The authors also showed that the effect of the antimony compound Fuadin, which *in vitro* had not previously been demonstrable, could be traced in the presence of suitable redox stains. R.H.H.

297—Biologisch Jaarboek.

a. CONINCK, L. A. DE, 1936.—"*Metaraeolaimoïdes oxystoma* n. g., n. sp. (Nematoda) en zijne afleiding van *Araeolaimoïdes* de Man 1893 door Allometrie." 3, 182-201. [French summary pp. 201-204.]

(297a) de Coninck describes and figures *Metaraeolaimoides oxystoma* n. g., n. sp. and discusses its systematic position. By means of a system of projection drawing he discloses the close relationship of the new form to *Araeolaimoides microphthalmus* de Man. T.G.

298—Boletín de la Asociación Médica de Puerto Rico.

a. SUÁREZ, R. M. & GAUTIER, C. B., 1936.—"The sternal marrow in Schistosomiasis mansoni chronic." 28 (12), 301-304.

299—Bollettino dell'Istituto Sieroterapico Milanese.

a. GENTILE, G., 1936.—"Ricerche sperimentali sulla *Taenia echinococcus*." 15 (8), 508-514. [German summary.]

(299a) The greater part of this paper, excluding a discussion of earlier work, has appeared in French elsewhere [see Helm. Abs., Vol. V, No. 101a]. B.G.P.

300—Brasil-Medico.

a. MARQUES, A., 1936.—"Esquistozomose e reacção leucemoide." 50 (24), 507-511.

301—British Medical Journal.

a. CAWSTON, F. G., 1936.—"Control of bilharzia-infected snails." [Correspondence.] No. 3958, p. 1004.

302—Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris.

a. FIESSINGER, N., BERGERET, A. & DUPUY, R., 1936.—"Un cas d'échinococcose alvéolaire du foie." 52 (28), 1377-1387.

303—Bulletin Mensuel de l'Office International d'Hygiène Publique.

a. DAMPF, A., 1936.—"Les Cératopogonidés: agents transmetteurs de filaires." 28 (10), 1955-1960.

(303a) Dampf summarizes our knowledge of the rôle of the Ceratopogonidae in the transmission of filarial parasites. Human onchocerciasis is transmitted in Africa by *Simulium damnosum* and possibly also by *S. naevi*, and in Mexico and Guatemala by *S. metallicum*, *S. callidum* and *S. ochraceum*. *Onchocerca cervicalis* of the horse is spread in Britain by *Culicoides nubeculosus*. Dampf has found the same species naturally infected in the Chiapas region of Mexico by two microfilariae; a large form corresponding to the larva of *O. volvulus* and a smaller form corresponding to that of *O. cervicalis*. In the Antilles *Mansonella ozzardi* is spread by *Culicoides furens*. This filaria also occurs on the coastal regions of the Gulf of Mexico where the insect vector is common. *Culicoides austeni* is the carrier of *Acanthocheilonema perstans*. A filaria has been recorded in *Holoconops mediterraneus* in Algeria by Sergent (1933) but Dampf does not consider the evidence given to be very reliable. R.T.L.

304—Bulletin of the New York State Agricultural Experiment Station.

a. CUNNINGHAM, H. S., 1936.—"The root-knot nematode (*Heterodera marioni*) in relation to the potato industry on Long Island." No. 667, 24 pp.

(304a) Cunningham describes the life cycle of *Heterodera marioni* in potatoes. Three generations are normally produced in one season, the first in the roots of the host, followed by two, or exceptionally three, generations in the tubers. Some varietal resistance to tuber infestation is shown to occur. Experiments show that a temperature of 25°F. for 10 weeks fails to rid soil of the nematodes. The maximum depth at which nematodes occur in the field is from 24 to 30 inches. Clean cultivation for two successive years is recommended as a control measure. M.J.T.

305—Bulletin. Puerto Rico Agricultural Experiment Station.

a. VAN VOLKENBERG, H. L., 1936.—"Parasites and parasitic diseases of swine in Puerto Rico." No. 38, 14 pp.

(305a) Van Volkenberg gives a popular account of the helminths of pigs in Puerto Rico. Those of most importance are *Metastrongylus elongatus* and *Choerostrongylus pudendotectus*, *Stephanurus dentatus*, *Globocephalus*

urosubulatus, *Macracanthorynchus hirudinaceus* and *Cysticercus cellulosae*, for which life history, importance, symptoms, lesions, treatment and preventive measures are given. The other helminths are less important in this locality: they include *Hyostrongylus rubidus*, *Ascarops strongylina*, *Ascaris lumbricoides*, *Necator suillus*, *Oesophagostomum dentatum* and *O. longicaudum*, *Trichuris suis* and *Fasciola hepatica*. J.W.G.L.

306—Bulletin de la Société de Chimie Biologique.

a. SMORODINZEW, I. A. & BÈBÈCHINE, K. V., 1936.—"Les protéinases des ténias." **18** (6), 1097-1105.

(306a) Smorodinzew & Bèbèchine present experimental evidence which demonstrates the presence in *Taenia solium* and *Taenia saginata* of the three protease enzymes, pepsin, cathepsin and trypsin. The relative activities of these, in media of suitable *p*H, were determined. R.H.H.

307—Bulletin de la Société Médico-Chirurgicale de l'Indochine.

a. GALLIARD, H., 1936.—"A propos de l'attraction des microfilaires de Bancroft par la sécrétion salivaires des moustiques." **14** (7), 977-980.
b. PHAN-HUY-QUAT, 1936.—"Les syndromes cliniques de la Distomatose hépatique à *Clonorchis sinensis*." **14** (7), 981-987.

(307a) Galliard finds that the attraction exerted on the embryos of *Filaria bancrofti* by the salivary secretions of *Culex fatigans*, *Stegomyia albopicta* and *Anopheles obturbans* is much slighter and more variable than previously reported by other workers. R.T.L.

(307b) The four chief symptoms of Clonorchiasis are epigastric pains, diarrhoea, oedema and ascites, with anaemia and jaundice. The various symptoms appear successively and are associated with three periods in the progress of the disease to a fatal termination. R.T.L.

308—Bulletin de la Société de Pathologie Exotique.

a. LE GAC, P., ESPIAN, M. & RARIVOSON, A., 1936.—"A propos d'un cas de bilharziose vésicale autochtone." **29** (4), 431-432.
b. LE GAC, P., 1936.—"Procédé pratique d'enrichissement des urines en oeufs de *Schistosomum haematobium*, chez les sujets atteints de bilharziose vésicale." **29** (4), 434-435.
c. BALOZET, L., 1936.—"Cercaires et metacercaires d'un *Brachylaemus*." **29** (5), 504-508.
d. JOLLY, A., 1936.—"L'anémie pernicieuse progressive et la cachexie aqueuse dans l'uncinariose. Discussion pathogénique." **29** (8), 908-916.
e. RAMIANDRASOA, A., 1936.—"Bilharziose intestinale à Mananjary." **29** (8), 929-930.
f. POISSON, H., 1936.—"Helminthiases et tuberculose." **29** (8), 931-933.
g. POISSON, H. & BUCK, G., 1936.—"Note à propos de *Setaria labiatopapillosa*." **29** (8), 933-934.
h. PÉRARD, C., 1936.—"Au sujet de la filariose du chien (*Dirofilaria immitis* Leidy)." **29** (10), 1036-1037.
i. ROUBAUD, E., COLAS-BELCOUR, J., TOUMANOFF, C. & TREILLARD, M., 1936.—"Recherches sur la transmission de *Dirofilaria immitis* Leidy." **29** (10), 1111-1120.

(308a) An indigenous case of *Schistosoma haematobium* is reported in Madagascar. R.T.L.

(308b) In cases clinically suspected of infestation with *Schistosoma haematobium* yet showing no eggs in the urine, Le Gac has found that slight irritation of the neck of the bladder by passing a Béniqué sound produces plentiful eggs in the next micturition. B.G.P.

(308c) Balozet describes the cercariae and metacercariae of a species of Brachylaemus, occurring in the Helicid, *Xerophila mendranoi*, in Tunisia. These are believed to be the larvae of *Brachylaemus suis* Balozet, from Tunisian pigs—this will be decided by later experiments. E.M.S.

(308d) From haematological evidence Jolly concludes that hookworm anaemia belongs to the Pernicious Anaemia group. One characteristic sign is the high eosinophilia which tends to disappear in severe cases and to reappear with amelioration of the anaemia. This eosinophilia varies with the functional activity of the haematopoietic organs, and is not a specific response to the presence of parasites. Oedema, due to chloride retention, is independent of renal lesions and is an integral part of the general humoral disturbance. The chief aetiological factor is poor assimilation owing to the lesions in the jejunal mucosa, and in this respect hookworm anaemia may be compared with the achylia due to gastric cancer. B.G.P.

(308f) On the indication of purely circumstantial evidence in Madasgascar, Poisson suggests that the markedly benign character of tuberculosis locally in man and animals may in some way be associated with intense helminthiasis. It would be interesting to seek a correlation which, if significant, would establish (he seems to think) a relation of cause and effect. B.G.P.

(308g) Poisson & Buck point out that, while *Setaria labiato-papillosa* usually occurs in very small numbers in the peritoneum and appears not to have any pathological effect, it may occur there in large numbers, as in a zebu autopsied by them, or in other organs such as lymphatic ganglia, spleen, and (in one of their zebus) the right heart. In such cases the parasite may be pathologically important. B.G.P.

(308h) Describing a case of *Dirofilaria immitis* and Leishmaniasis in a dog, Pérard points out the difficulties of differentiating the symptoms of these two diseases by clinical means only, particularly as the insect vectors of these parasites co-exist in the same districts. Positive diagnosis can be made by examination of the blood. The dog acquired the infection in the eastern Pyrenees. J.W.G.L.

(308i) This work on vectors of *Dirofilaria immitis* shows that the intermediate hosts vary in their efficiency as vectors. For instance, *Aëdes aegypti* is a perfect vector in Australia, the Philippines and in Maryland (U.S.A.), but although common in France it is of little importance as intermediate host. Among these mosquito vectors are a number of physiological strains which in the author's experiments were not equally effective. It is suggested therefore that the microfilariae and the vectors have become adapted to one another in various localities. J.W.G.L.

309—Bulletin de la Société Zoologique de France.

a. LINDBERG, K., 1936.—" Un nouveau cyclopide d'eau douce de l'Iran *Mesocyclops iranicus* n. sp. hôte intermédiaire probable du ver de Médine à Lar." **61** (4), 253-259.

310—Canadian Journal of Research. Section D. Zoological Sciences.

a. SWALES, W. E., 1936.—" *Tetrameres crami* Swales, 1933, a nematode parasite of ducks in Canada. Morphological and biological studies." **14** (10), 151-164.
b. CAMERON, T. W. M., 1936.—" Studies on the endoparasitic fauna of Trinidad mammals. IV. Further parasites from Trinidad deer." **14** (11), 165-167.
c. GRIFFITHS, H. J., 1936.—" On the fourth stage larva of *Chabertia ovina*." **14** (11), 168-171.
d. PARNELL, I. W., 1936.—" Studies on the bionomics and control of the bursate nematodes of horses and sheep. III. Further observations on the toxicity of urine and some related substances for sclerostome larvae in feces." **14** (11), 172-180.

(310a) Swales describes *Tetrameres crami* from *Anas* spp. and related birds in N. America; this being the first description of the male. Two species of Entomostraca, *Hyalella knickerbockeri* and *Gammarus fasciatus*, can act as intermediate hosts. Two moults occur here, the larvae taking about 29 days to become infective. He considers the possible pathological reactions in the definitive host. P.A.C.

(310b) In this paper Cameron records the trematode *Paramphistomum cotylophorum* from *Mazama simplicicornis* and also describes the female of the nematode *Eucyathostomum longesubulatum*. D.O.M.

(310c) Griffiths describes the early fourth stage larva of *Chabertia ovina* which occurred in the large intestine of a domestic goat together with a few adult *Chabertia* and several Oesophagostomes. J.W.G.L.

(310d) Parnell shows by experiments, using his standard 40 grams of horse faeces, that cow urine varies in its lethal property on horse sclerostome larvae: the amount required to sterilize the faeces varied from 10 c.c. to over 25 c.c. in samples taken from 10 different cows. Urine slowly lost its toxicity with age, about double the quantity of urine was required to sterilize 40 grams of faeces when 28 weeks old, and urine a year old was practically non-lethal. The dilution of urine showed that the lethal property was roughly proportional to the dilution. Tests with " byre fluids " show little use as a disinfectant but " manure water " was of slight but no practical value. Ammonia solution containing 27% NH_3 was lethal when 0·75 c.c. was added to 40 grams of faeces, but more dilute solutions required slightly larger amounts of NH_3. Acetone also was tested, 5 c.c. being necessary to destroy the larvae in a 40 gram sample. J.W.G.L.

311—Canadian Medical Association Journal.

a. FANTHAM, H. B. & PORTER, A., 1936.—" Some entozoa of man as seen in Canada and South Africa." **34** (4), 414-421.

312—Capita Zoologica.

a. THORNE, G. & SWANGER, H. H., 1936.—" A monograph of the nematode genera *Dorylaimus* Dujardin, *Aporcelaimus* n. g., *Dorylaimoides* n. g. and *Pungentus* n. g." **6** (4), 223 pp.

(312a) Thorne & Swanger describe 170 species of the genus *Dorylaimus*, 58 of which are new ones. The following new genera are erected, viz., *Aporcelaimus* n. g. with 7 spp., including 2 n. spp., *Dorylaimoides* n. g. with 7 spp., including 2 n. spp., and *Pungentus* n. g. with 3 spp., including 2 n. spp. Useful information is given in the introductory pages on technique, morphology, food habits and specific determination. Keys are given for the species of all the genera dealt with. The work is illustrated with 31 plates comprising 531 excellent drawings. T.G.

313—Chinese Journal of Physiology.

a. PAK, C. & READ, B. E., 1936.—" Anthelmintic action of propyl guaiacol." **10** (2), 249-257.

(313a) Pak & Read found that propyl-guaiacol is an active anthelmintic for ascarids in dogs and cats but has no effect on tapeworms, hookworms and flukes. The drug, even in small doses, irritates the alimentary canal and, compared with Santonin, is definitely more toxic to the host. It has also a smaller safety margin ; the minimal effective dose for cats and dogs being 0·02 c.c. per kg. and the fatal dose 2 c.c. per kg. D.O.M.

314—Chinese Medical Journal.

a. CHU, T. C., LIU, B. C., LING, C. Y. & ZEE, G. F., 1936.—" A survey of intestinal parasites in the rural experimental health area at Kao-Chiao, Shanghai." **50** (9), 1243-1254.

b. LIU, H. L., 1936.—" Betel nut as a useful taeniafuge." **50** (9), 1273-1278.

c. HUECK, O. & WAN, H. F., 1936.—" A note on the treatment of *Clonorchis sinensis* with Fouadin." **50** (9), 1281-1282.

d. FENG, L. C. & HOEPPLI, R., 1936.—" Sparganum of *Diphyllobothrium erinacei* as carrier of bacteria and the problem of its bactericide action." **50** (10), 1457-1464.

e. ROBERTSON, R. C., 1936.—" Schistosomiasis in the Foochow area." **50** (11), 1555-1560.

f. CAMPBELL, H. E., 1936.—" Splenomegaly in the Foochow area. With special reference to schistosomiasis, and its relationship to cryptogenetic splenomegaly (Banti's disease). A preliminary report." **50** (11), 1561-1576.

g. KAU, L.S., 1936.—" Histological studies of splenomegaly with special reference to material from the Foochow area." **50** (11), 1577-1584.

h. TANG, C. C., 1936.—" Schistosomiasis japonica in Fukien. With special reference to the intermediate host." **50** (11), 1585-1590.

i. HSÜ, H. F. & KHAW, O. K., 1936.—" Studies on certain problems of *Clonorchis sinensis*. I. On the cysts and second intermediate hosts of *C. sinensis* in the Peiping area." **50** (11), 1609-1620.

j. KAN, H. C. & KUNG, J. C., 1936.—" A preliminary report on the specific treatment of Schistosomiasis japonica." **50** (11), 1637-1648.

k. KAN, H. C., 1936.—" Further note on the intracutaneous test with *Schistosoma japonicum* antigen." **50** (11), 1649-1652.

l. YAO, Y. T., 1936.—" Report on the investigation of Schistosomiasis japonica in I-Hsing, Tai Hu endemic area." **50** (11), 1667-1669.

m. JACKSON, R. B., 1936.—" Some observations on the occurrence of filarial infection in mosquito and man in the colony of Hong Kong." **50** (12), 1767-1772.

(314b) Liu reports the use of betel or areca nut as a successful taeniafuge. Ten cases were treated and from these 15 worms were expelled, of which 10 heads were found. The dose recommended is 30 grams of betel nut boiled in 200 c.c. of water. No toxicity resulted from this dosage, but a warning is given that the alkaloidal content of betel nut may vary in different regions and that care should be taken when using it experimentally. K.S.

(314d) The spargana of *Diphyllobothrium erinacei* from hedgehogs perforate the intestinal wall of Chinese hamsters within 45 minutes after feeding but never cause death by peritonitis. Although they cause large apertures in the gut wall and permit the entry of numerous bacteria into the abdominal cavity the bacteria disappear within 24 hours after infection as a result of a powerful bactericidal action on the part of the hamster. Neither living spargana nor sparganum emulsion had any influence on bacterial growth in cultures. R.T.L.

(314e) Cases of splenomegaly seen at Foochow were traced to neighbouring villages where a heavy infection with *Schistosoma japonicum* was established. The local carrier has been classified by Dr. Bartsch as *Katayama tangi*. Adult worms reared in mice from naturally infected *K. tangi* are indistinguishable from *S. japonicum*. R.T.L.

(314f) A disease indistinguishable from Banti's disease is very common in the Foochow area. 200 cases have been studied. In 3 out of 6 livers examined ova of *Schistosoma japonicum* were obtained. Campbell urges a search for adult worms at post mortem where eggs are not discovered in the liver. R.T.L.

(314g) In 13 specimens of splenomegaly from cases in the Foochow area the findings were in most cases similar to those of splenic anaemia or Banti's disease. Focal areas of haemorrhages in most of the spleen sections gave an impression suggestive of schistosomiasis even though no ova were found. Liver biopsies showed ova in two cases, and at post mortem ova were detected in the tissues in two other cases. R.T.L.

(314h) There is an endemic centre of *Schistosoma japonicum* in the Futsing district of Fukien. A large number of villages are listed where the intermediate host, *Katayama tangi* Bartsch, was collected. The system of irrigation practised in the hilly districts is described. Of 11,159 snails examined during February and March, 1·28% were found to be infected. These were collected from a mountain stream in front of the village Boui Moui. R.T.L.

(314i) By feeding entire freshwater fish to experimental animals various authors have incriminated 44 species as vectors of *Clonorchis sinensis* in the Sino-Japanese area. Of these, 41 are Cyprinidae, 2 Gobiidae and 1 Osphronemidae. To these must be added 5 species already known in the Orient and recorded by Houdemer (1934) from Indo-China. The authors point out that the cysts described by certain authors are those of *Metagonimus* not *Clonorchis* and the purpose of this paper is to afford more exact information regarding the cysts and the second intermediate hosts. The distribution of the cysts of *Clonorchis* in 119 different specimens was found to be as follows: scales 2%, gills 4·7%, skin 5·9% and flesh 87·4%. The

diagnostic features of the cysts of *Metagonimus yokogawai*, *Metorchis orientalis*, *M. taiwanensis* and *Echinochasmus perfoliatus* are summarized. A table is given of the species of freshwater fishes found in the Peiping area, and of these, 13 Cyprinoids are listed as naturally infected with *Clonorchis sinensis*. The almost complete absence of human infection in the area is attributed to the food habits of the local population who do not customarily eat raw fish. R.T.L.

(314j) The relative merits of tartar emetic, Fouadin and emetine in the treatment of *Schistosoma japonicum* are discussed. Emetine, owing to cost and toxicity, is only used in cases complicated with amoebic dysentery. The authors' experiences indicate that sodium antimony tartrate gives better results and is cheaper than Fouadin or emetine. While the most powerful vermicide of the three, it also gave the most reactions. R.T.L.

(314k) The intracutaneous test with *Schistosoma japonicum* antigen failed to elicit a positive reading in only 1% of proved schistosomiasis cases. The test is considered to be of great service, especially in field work. R.T.L.

(314m) 12·25% of 106 inhabitants of Little Hong Kong showed microfilariae in the blood at 10 p.m. The infections were scanty. Larval filariae occurred in *Anopheles minimus*, *A. hyrcanus*, *A. jeyporiensis* and *Culex fatigans*. Experimental infections by feeding gave worm averages of 1·5 in *A. minimus*, 6·75 in *A. maculatus* and 4·87 in *Aëdes togoi*. Clinical filariasis is uncommon in the Colony. R.T.L.

315—Circular. United States Department of Agriculture.

a. SNYDER, E., 1936.—"Susceptibility of grape rootstocks to root knot nematode." No. 405, 15 pp.

(315a) Snyder describes the injuries to *Vitis vinifera* varieties of grapes caused by *Heterodera marioni*, and records the results of experiments on varietal resistance. Some degree of resistance was shown by certain grape species, notably *Vitis doaniana*, *V. champini*, *V. longii* and *V. cinerea*. M.J.T.

316—Clinica Medica Italiana.

a. MASSIONE, R., 1936.—"Sull'ossalemia negli anchilostomiasici." **67** (1) 31-54.

(316a) From a study of 20 female hookworm cases, in hospital, Massione concludes that "oxalaemia" (a term which he prefers to oxaluria) is often closely associated with ancylostomiasis. Heavily infected cases show a hyperoxalaemia which returns to normal after the worms have been removed. This association is probably due to a toxic effect of the hookworm upon the liver. B.G.P.

317—Comptes Rendus des Séances de la Société de Biologie.

a. URBAIN, A., 1936.—" La réaction de fixation appliquée au diagnostic de l'échinococcose de certaines espèces animales domestiques ou sauvages." **122** (24), 999-1002.
b. DÉVÉ, F., 1936.—" Sur le siège exclusivement infradiaphragmatique et périviscéral des greffes échinococciques provoquées chez la souris blanche par inoculation intrapéritonéale de sable hydatique." **123** (28), 353-355.
c. DÉVÉ, F., 1936.—" Sur le siège initial des kystes hydatiques musculaires." **123** (32), 764-765.
d. BLANC, G. & DESPORTES, C., 1936.—" La bilharziose bovine au Maroc." **123** (32), 766-767.
e. DORIER, A., 1936.—" Sur le développement des pontes de *Gordius aquaticus* Duj. en milieu humide." **123** (34), 955-956.

(317a) Using the Casoni reaction for the identification of hydatid cyst in a variety of animals including *Cervus*, *Antilope*, *Bos* and *Lama* spp., Urbain finds that it is of limited value. With wild animals in captivity he has been successful in only 68·5% of his cases. P.A.C.

(317b) Repeating his work on hydatid in mice, Dévé finds once again that the diaphragm is an impenetrable barrier to the passage of the scolices when they are administered by intraperitoneal inoculation. This is in contrast to the work of Coutelen, who found that there was an active migration through the diaphragm. P.A.C.

(317c) Dévé has established experimentally that muscular hydatid develops within the muscle fibres involving the fibres themselves and not in the intrafascicular connective tissue as has sometimes been believed.

P.A.C.

(317d) Blanc & Desportes confirm the occurrence of *Schistosoma bovis* and of its intermediary *Bullinus contortus* in Gharb region of Morocco.

R.T.L.

(317e) Dorier shows, from various experiments which he describes, that *Gordius aquaticus* Duj. is capable of development out of water but in a moist medium in which, however, the normally organized larva does not hatch at the end of its development but remains latent within the egg-shell. Thus protected, the larva awaits favourable conditions, such as simple contact with water, for hatching. The author considers that *Glomeris marginata* and *Lithobius*, normal hosts of *G. aquaticus*, can become infested by ingestion, either directly or with food, of fragments of female worms developing in a moist medium because in experiments the diluted digestive juice of these myriapods caused about 30 to 60% of the eggs to hatch.

J.N.O.

318—East African Medical Journal.

a. CRUICKSHANK, A., 1936.—" Tropical diseases of the Southern Sudan: their distribution and significance." **13** (6) 172-177.
b. ALLEN, K. W., 1936.—" Bilharzia disease." **13** (9), 264-271.

(318a) SCHISTOSOMIASIS is stated to be of the *S. mansoni* type and to be common in the south west and west of the Sudan. It is not endemic east of the Nile and is comparatively rare in the Nile Valley. Sporadic cases of

S. haematobium occur. Infection at Li-Rangu was 17% of all hospital admissions and at Wau 9% harboured these parasites. In all cases the symptoms were slight. FILARIASIS. *Filaria perstans* is almost universal. At Wau 64% of 642 persons of the general population were found to be infected. *Loa loa* is limited to the territory adjoining the Belgian Congo and French Equatorial Africa, chiefly in the Zande tribe. At Li-Rangu Hospital 38% of 681 male admissions and 20% of 396 female admissions had the parasite. It is suggested that *Loa loa* may be a factor in the causation of elephantiasis and hydrocoele. The local chrysops is *C. distinctipennis*. *Onchocerca volvulus* is found in all Loa districts and extends to the limits of the fly belt northwards. It has a wider distribution than Loa. *Simulium damnosum* abounds along wooded streams especially near rocky pools but disappears when the plains are reached. Associated lesions are subcutaneous nodules, lichenoid thickening and itchy eruptions of the skin, elephantiasis of genitals, hydrocoele, eye lesions often ending in total blindness. DRACONTIASIS is endemic in all the valley country east of the Nile and the cattle area west of the river. It is estimated that 60% of the inhabitants of the Yei district, bordering Uganda, were found to be infected. The use of an emulsion of Heglig berries (*Balanites aegyptiaca*) has been extensively used for killing cyclops and as a result the disease has now almost disappeared. ANKYLOSTOMIASIS. The whole of the region west of the Nile is infected and the disease has attained serious proportions. It is rare on the east bank. It is grave among the Dinka herdsmen. Hospital admissions at Wau show 28%, at Yubu 17% and at Li-Rangu 35% of infected persons. R.T.L.

(318b) Allen records his experiences of *Schistosoma haematobium* in the Africans of the Nyika Reserve in Kenya where infection is common among boys. His observations are mainly clinical but in dealing briefly with the problem of control he points out that there are few permanent rivers and lakes in the area. Every few years there is a water shortage, when pools dry up and springs do not come to the surface. The people get water only by digging at the sites of the dry river beds and springs. He suggests that during this dry season (i) an attack should be made on the snails, (ii) a campaign of injections by trained Africans under supervision should be inaugurated, and (iii) patients should be supplied with food as a measure of famine relief and to secure co-operation. He mentions that *S. mansoni* occurred at Kilifi. R.T.L.

319—Écho Médical du Nord.

a. COUTELEN, F., 1936.—"Étude critique et expérimentale de quelques hypothèses récentes relatives au cycle évolutif du Ténia échinocoque et à la prophylaxie de l'échinococcose." **5** (16), 639-656.

(319a) Coutelen here covers the same ground as in another recent publication, reviewing recent theories on the life-history of Echinococcus in the light of his own experiments [see Helm. Abs., Vol. V, No. 247a].

B.G.P.

320—Farmers' Bulletin. United States Department of Agriculture.

a. BUCKLEY, J. S., BUNYEA, H. & CRAM, E. B., 1936.—"Diseases and parasites of poultry." No. 1652, 70 pp.

(320a) Buckley, Bunyea & Cram have revised and brought up to date Bull. No. 1337 of the U.S. Dept. Agric., published in 1931, which deals with diseases and parasites of domestic poultry. They describe and figure the diseases and parasites prevalent in the U.S.A. and suggest methods of prevention and cure where possible. P.A.C.

321—Farming in South Africa.

a. MÖNNIG, H. O., 1936.—"Internal parasites." **11** (127), 431.
b. MÖNNIG, H. O. & COLES, J. D. W. A., 1936.—"Parasites of fowls." **11** (128), 482-485.

(321a) Mönnig gives a brief popular outline of the life-history, pathology, and control of the internal parasites of sheep prevalent in South Africa. He stresses the importance of adequate feeding of the sheep in the control of worm infestation, and also the separation of the lambs from the ewes on to dry clean ground during the warm and rainy season of their first year. K.S.

322—Gazette Hebdomadaire des Sciences Médicales de Bordeaux.

a. SIGALAS, R. & DERVILLÉE, P., 1936.—"A propos de l'emploi du tétrachlorure de carbone comme parasiticide." **57** (44), 692-695.

(322a) After giving a general account of carbon tetrachloride and its uses against ectoparasites and helminths, Sigalas & Dervillée discuss its toxicity to the tissues of the liver and kidneys, and conclude that it is a dangerous drug, to be used, if at all, with great caution. B.G.P.

323—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

a. SOETJAHJO, M., 1936.—"Een geval van Paragonimiasis." **76** (42), 2670-2672.
b. MEYERS, F. M., 1936.—"Anchylostomiasis en Bloedarmoede. (Een samenvattend overzicht van enige nieuwere clinische onderzoekingen)." **76** (47), 3046-3055.

(323a) [A case of paragonimiasis.]

(323b) [Hookworm anaemia: a survey of recent clinical experiments.]

324—Geneeskundig Tijdschrift voor Nederlandsch-Indië. Feest Bundel 1936.

a. STEENIS, P. B. VAN, 1936.—"Acute ankylostomiasis en het larvaire weefselstadium van *Ankylostoma duodenale*." pp. 655-663.

(324a) Van Steenis describes a case of Ancylostomiasis in a European visiting Sumatra. He is particularly concerned with the development of gastro-intestinal symptoms and the onset of a cough before hookworm eggs had yet appeared in the faeces, symptoms which he ascribes to the migrating hookworm larvae. B.G.P.

325—Giornale di Batteriologia e Immunologia.

a. BACIGALUPO, J. & FRANZANI, O. F., 1936.—" A proposito del potere antigenico dei liquidi idatidei." **16** (6), 872-875.

(325a) Bacigalupo & Franzani have induced the production of specific antibodies in rabbits by means of intravenous injections of hydatid fluid from sheep, ox or pigs. Such antibodies are apparent from 5th to 7th day after the first injections as is witnessed by fixation of complement. The fluid may be heated to 100 C. for 5 minutes without destroying its power. They do not find the precipitation test to be of value in the demonstration of antibodies. P.A.C.

326—Giornale Italiano di Dermatologia e Sifilografia.

a. FRACCARI, B., 1936.—" Sopra un caso di purpura annularis teleangiectodes." **77** (1), 47-52.

(326a) Discussing a case of purpura, in which *Strongyloides stercoralis* was found to be present, Fraccari is inclined to invoke the latter as a factor in the aetiology of the former. B.G.P.

327—Giornale Italiano di Malattie Esotiche e Tropicali ed Igiene Coloniale.

a. CHIODI, V., 1936.—" Brevi cenni nosografici dell'Etiopia." **9** (8), 157-163.
b. GIORGI, M. DE, 1936.—" Della profilassi della anchilostomiasi con la calciocianamide. (Contributo sperimentale)." **9** (8), 172 & 175.

(327a) Hookworm is the principal parasitic disease of man in Abyssinia. Chiodi also records Ascaris, Trichuris, Oxyuris, *Taenia saginata* and *Hymenolepis nana*. Schistosomiasis occurs both in man and in cattle. Cases of elephantiasis in natives are mentioned as due to *Filaria bancrofti* " and *F. medinensis*." Common also are *Oesophagostomum radiatum* in cattle, Setaria in horses (" *F. labiato-papillosa* "), *Dirofilaria* and *Taenia serrata* in dogs, a worm described as *Authostrongylus somalinensis* in camels, and hydatid in cattle and camels. B.G.P.

(327b) Fully confirming the results of other workers, such as Penso, de Giorgi finds that calcium cyanamide kills hookworm larvae and arrests development of the eggs. Dilutions of 0·2 to 0·3% were efficacious in Petri-dish cultures. [Few details are given.] B.G.P.

328—Indian Journal of Medical Research.

a. MOORTHY, V. N. & SWEET, W. C., 1936.—" A peculiar type of guinea-worm embryo." **24** (2), 531-534.
b. RAO, S. S., 1936.—" The effect of gastric juice and of bile on cyclops infected with guinea-worm larvae." **24** (2), 535-540.

(328a) In six out of ten patients atypical embryos of guineaworm have been found among normally shaped forms from the same worm. The abnormality consists of a " tail " jutting out ventrally from the foreshortened normal tail. The author suggests that the two different types may represent different sexes. R.T.L.

(328b) Rao reports the results of experiments carried out with different concentrations of hydrochloric acid and of fresh gastric juice of different acid concentrations on cyclops infected with guineaworm larvae. Cyclops die in 30 minutes in 0·0125% of HCl and the guineaworm larvae are activated. The effect is not due to the pepsin for cyclops live in 1 to 0·1% for 24 hours. Concentrated bile similarly has a lethal effect in 10 minutes but when diluted this is greatly delayed. R.T.L.

329—Indian Journal of Veterinary Science and Animal Husbandry.

a. RAO, M. A. N. & MUDALIAR, S. V., 1936.—" Observations on the treatment of bovine nasal schistosomiasis." **6** (4), 332-345.
b. PANDE, P. G., 1936.—" On the identity of the nematode worm recovered from hump sore of cattle in India." **6** (4), 346-351.

(329a) Rao & Mudaliar record tests on 3 drugs for the treatment of bovine nasal schistosomiasis in bullocks and heifers of ages between 2 and 12 years and weighing 168 lb. to 308 lb. Trypaflavin was useless. Antimosan given according to the maker's instructions was safe and effective but expensive. Antimonium tartaratum was effective and cheap, 1·5 grains per 100 lb. body weight daily for 6 days or 2·5 grains on alternate days being recommended. Any dose above 3·5 grains per 100 lb. was dangerous. J.W.G.L.

(329b) A comparison has been made between adult Filaria worms found in the hump sores of cattle in India and *Stephanofilaria dedoesi*, the embryos of which cause " Cascado " in cattle in the Dutch East Indies, and *S. stilesi* in the United States. The worms belong to the same genus but the Indian form is here named *S. assamensis* n. sp. as both male and female adults are stouter and thicker and the left spicule is much smaller than that in the other two species, while the vulvar orifice of *S. assamensis* like that of *S. stilesi* is further from the mouth than in *S. dedoesi*. R.T.L.

330—Indian Medical Gazette.

a. MOORTHY, V. N. & SWEET, W. C., 1936.—" A biological method for the control of dracontiasis." **71** (10), 565-568.
b. MOORTHY, V. N. & SWEET, W. C., 1936.—" Guinea-worm infection of cyclops in nature." **71** (10), 568-570.

(330a) The use of fishes of the genus *Barbus* is advocated for the control of cyclops, the intermediate host of the guineaworm. Step wells in India should be treated with 3 lb. per 100,000 gallons of Perchloron before stocking with fish. R.T.L.

(330b) Although *Mesocyclops leuckarti* and *M. hyalinus* are the only species of cyclops found naturally infected with guineaworm larvae in the Mysore State, *M. decipiens*, *Paracyclops fimbriatus* and *Microcyclops karvei* gave full development of the larvae in the laboratory. Although young female cyclops were found naturally infected, in none of the fully mature females bearing ovi-sacs examined, was infection observed. R.T.L.

331—Journal of the American Medical Association.

a. HOFF, A., 1936.—" Schistosomiasis. Report of two cases." **107** (17), 1375-1378.

b. McNAUGHT, J. B. & ANDERSON, E. V., 1936.—" The incidence of trichinosis in San Francisco." **107** (18), 1446-1448.

c. STERLING, R. & GUAY, A. J. L., 1936.—" Invasion of the female generative tract by *Ascaris lumbricoides*." **107** (25), 2046-2047.

(331b) McNaught & Anderson report the presence of *Trichinella spiralis* in 48 out of 200 human diaphragms obtained at autopsy in San Francisco and the absence of these larvae from 25 diaphragms of new born infants. Artificial digestion of 50 grams of muscle was carried out for diagnosis and living larvae were found in each positive case. The highest eosinophil count was 4%. Heart muscle of 15 positive cases was negative. Out of 10 specimens of fresh pork sausages purchased in San Francisco 2 contained living Trichinella larvae. The authors consider that as there is no practical method of inspection for trichinosed meat the consumer must rely on the thorough cooking of fresh pork. J.W.G.L.

332—Journal of the American Veterinary Medical Association.

a. BEAUDETTE, F. R., 1936.—" Microfilaria in a duck." **89** (5), 589-590.

(332a) Beaudette records the presence of sheathed microfilariae in the blood of a duck at East Quoque, L.I., but no adults were found. J.W.G.L.

333—Journal of the Biological Board of Canada.

a. McFARLANE, S. H., 1936.—" A study of the endoparasitic trematodes from marine fishes of Departure Bay, B.C." **2** (4), 335-347.

(333a) McFarlane reports fifteen species of trematodes from the common shallow water fishes of Departure Bay, as follows: *Prosorhynchus scalpellus* n. sp., *P. apertus* n. sp., *Rhipidocotyle elongatum* n. sp., *Podocotyle abitionis* n. sp., *P. atomon*, *P. reflexa*, *Pharyngora bacillaris*, *Aporocotyle simplex*, *Stephanostomum tristephanum* n. sp., *S. casum*, *Deretrema cholaeum* n. sp., *Telolecithus pugetensis*, *Dinurus nanaimoensis* n. sp., *Lecithochirium exodicum* n. sp., *Genolinea laticaula* [*laticauda* ?]. In the case of new species comparative tables are used to distinguish between the new form and its nearest related species. E.M.S.

334—Journal of the Chosen Medical Association.

a. NAKATA, K., 1936.—" On the resistance of the egg of *Ascaris lumbricoides* to the alimentary canal of animals." **26** (9), 821-839. [In Japanese: English summary p. 45.]

b. CHO, C. H., 1936.—" Clinical investigation of gastric acidity in cases with liver fluke." **26** (11), 1068-1074. [In Japanese: English summary pp. 62-63.]

(334a) Nakata finds that *Ascaris lumbricoides* eggs which have passed through the gut of man or of laboratory animals in an undeveloped state still become infective when they reach the outer world again. The rate of development is however slowed down. P.A.C.

(334b) Cho determined free HCl and total acidity of stomach contents in a number of uncomplicated liver fluke cases (human), and found that in severe cases gastric acidity was markedly depressed. B.G.P.

335—Journal of the Egyptian Medical Association.

a. KHALIL, M., 1936.—" Filariasis and elephantiasis in Rosetta and the means of their effective control." **19** (12), 701-716.
b. MOHAMED, A. S., 1936.—" Egyptian splenomegaly. Part III. Studies on schistosome toxins." **19** (12), 737-748.
c. MOHAMED, A. S., 1936.—" A fatal case of massive Bilharzia mansoni infection. (Acute, fatal Egyptian splenomegaly)." **19** (12), 749-762.

(335a) So many cases of elephantiasis and filariasis occur in Rosetta that the local Arabic name for elephantiasis of the lower limbs is " Rosetta leg." Rosetta has now a filtered water supply but there are over a thousand saline wells which are used for washing and cleaning house utensils to economise the piped supply. These wells act as the principal breeding places of *Culex pipiens*, an established carrier of *Filaria bancrofti* in Egypt. An examination of the night blood of 1,000 inhabitants gave a filarial rate of 10·2%. Filariasis is practically absent from the villages in the neighbourhood of Rosetta, due apparently to the absence of wells. The filling of all wells and cisterns and the extension of the filtered water supply to all parts of the town is recommended. R.T.L.

(335b) Mohamed is of opinion that the bilharzial invasion of the liver in Egyptian splenomegaly is only a trifling factor compared with the extent of the infection and more constant deposits of ova of *Schistosoma mansoni* in the lower bowel which largely if not wholly contribute to the production of endemic splenomegaly. After comparing the Egyptian syndrome with Laennec's cirrhosis and alcoholic cirrhosis the author has formed the opinion that it would be better not to treat the Egyptian splenomegaly as a separate and peculiar entity but to consider it an acute and severe form of ordinary portal or Laennec's cirrhosis, the causal toxic factor being of schistosome origin. R.T.L.

336—Journal of Helminthology.

a. BHALERAO, G. D., 1936.—" Studies on the helminths of India. Trematoda II." **14** (4), 181-206.
b. BHALERAO, G. D., 1936.—" Studies on the helminths of India. Trematoda III." **14** (4), 207-228.
c. CLAPHAM, P. A., 1936.—" Preliminary observations on the infectivity of *Ascaris lumbricoides* to swine." **14** (4) 229-232.
d. JOHNSON, L. R., 1936.—" A note on the occurrence of *Anguillulina dipsaci* (Kühn, 1858) on certain weeds, including a new host record." **14** (4), 233-235.

(336a) Bhalerao, after critically reviewing *Ommatobrephus folium* Thapar & Ali, considers it to be synonymous with *O. lobatum* Mehra. He accepts Plagiorchidae Lühe in place of Lepodermatidae Odhner. Cephalogonimidae is treated as a subfamily of Plagiorchidae. *Cephalogonimus gangeticus* and *C. magnus* are synonyms of *C. amphiumae*. A key

is given for the species *Styphlodora* and *S. nicolli* n. sp. is described. The genus *Astiotrema* is reviewed. *A. rami* n. sp. is described and *A. gangeticus* is considered to be a synonym of *A. loossi*. *A. reniferum* Odhner 1911 is replaced by *A. odhneri* n. sp. R.T.L.

(336b) The genera *Mesodendrium* and *Acanthatrium* are considered to be synonyms of *Lecithodendrium* and *Prosthodendrium*. A key is given for the species of *Prosthodendrium*, including *P. pushpai* n. sp. The non-tuberculate variety of *Schistosoma spindalis* is recorded from a calf in Coorg. The species of the genus *Haplorchis* are reviewed. *Halipegus* sp. is recorded from *Rana tigrina*. A number of other trematode species are annotated, and *Ganeo korkei* n. sp. is described. R.T.L.

(336c) Clapham believes that a successful method of infecting pigs with *Ascaris lumbricoides* is by means of a number of small doses spread over a period of time. Infections have been induced using only 2,000 eggs spread over 10 days. There were symptoms of pneumonia and later eggs were demonstrated in the stools. P.A.C.

(336d) In crops of oats and beans growing in Yorkshire suffering from disease caused by the stem eelworm, *A. dipsaci*, Johnson has found chickweed (*Stellaria media* Cyrill.) and cleavers (*Gallium Aparine* L.) attacked by this parasite. Cleavers is a new host record. He describes the disease symptoms in the weeds and discusses the significance of the occurrence of such affected weeds in relation to the persistence of eelworm disease in crops. T.G.

337—Journal of Infectious Diseases.

a. SARLES, M. P. & TALIAFERRO, W. H., 1936.—"The local points of defence and the passive transfer of acquired immunity to *Nippostrongylus muris* in rats." 59 (2), 207-220.

b. CAMPBELL, D. H., 1936.—"An antigenic polysaccharide fraction of *Ascaris lumbricoides* (from hog)." 59 (3), 266-280.

(337a) Sarles & Taliaferro find that immunity to *Nippostrongylus muris* in rats is localized in the skin, lungs and intestine, i.e., in those organs in which active feeding and growth occur. The fact that this immunity can be transferred to other rats suggests that antibodies are formed and a precipitin has indeed been demonstrated around and in the gut of worms in the skin and lungs of immune animals. Larvae which succeed in reaching the intestine of immune hosts are stunted, fail to produce eggs and are quickly passed out. The first week of the infection, during migration, is the important time in the production of this acquired immunity. P.A.C.

(337b) Campbell has isolated and examined chemically a polysaccharide from *Ascaris lumbricoides* of pigs. It is capable of inducing the production of antibodies in the serum and the results using precipitation, skin and anaphylactic tests indicate that the reactions are due to the polysaccharide fragment itself and not to traces of contaminating antigenic protein. Precipitin tests showed the polysaccharide and protein to be distinct immunologically. P.A.C.

338—Journal of Oriental Medicine.

a. FUKUDA, S. & MORIKAWA, K., 1936.—"Ueber die Metagonimiasis yokogawai in Dairen." **25** (5), 1031-1042. [In Japanese: German summary p. 85.]

(338a) Fukuda & Morikawa report 33 cases of *Metagonimus yokogawai* out of 5,077 patients treated in Dairen hospitals. The first intermediate host, *Melania libertina*, has not yet been reported in Manchuria or in Dairen. R.T.L.

339—Journal of Parasitology.

a. HUFF, G. C., 1936.—"Experimental studies of factors influencing the development of the eggs of pig ascarid (*Ascaris suum* Goeze)." **22** (5), 455–463.
b. SANDGROUND, J. H., 1936.—"On the potential longevity of various helminths with a record for a species of *Trichostrongylus* in man." **22** (5), 464–470.
c. MUELLER, J. F., 1936.—"Comparative studies on certain species of *Diphyllobothrium*." **22** (5), 471–478.
d. FOSTER, A. O., 1936.—"A quantitative study of the nematodes from a selected group of equines in Panama." **22** (5), 479–510.
e. CHANDLER, A. C., 1936.—"The genus *Schizotaenia* in porcupines." **22** (5), 513.
f. ALICATA, J. E., 1936.—"The amphipod, *Orchestia platensis*, an intermediate host for *Hymenolepis exigua*, a tapeworm of chickens in Hawaii." **22** (5), 515–516.
g. McMULLEN, D. B. & ROUDABUSH, R. L., 1936.—"A new species of trematode, *Cercorchis cryptobranchi*, from *Cryptobranchus alleganiensis*." **22** (5), 516–517.
h. ROUDABUSH, R. L., 1936.—"Arthropod and helminth parasites of the American bison (*Bison bison*)." **22** (5), 517–518.
i. AMERICAN SOCIETY OF PARASITOLOGISTS, 1936.—"Program and abstracts of the twelfth annual meeting." **22** (6), 523–547.

(339a) Huff considers that the failure of *Ascaris* eggs to develop at temperatures around 38 C. may be due to the influence of the albuminous covering on oxygen consumption. Removal of the albuminous covering was found to result in a five-fold increase in the oxygen taken into the eggs and when such eggs were cultivated at 38 C., 87% developed through the tadpole stage and 11% became embryonated. D.O.M.

(339b) Sandground gives data on the longevity of a number of helminths found in man and other animals and mentions in particular an infection which he acquired in January 1928 and which still persists nearly eight and a half years after it became established. The parasite is considered to be a species of the genus *Trichostrongylus*. D.O.M.

(339c) *Diphyllobothrium mansoni* and *D. mansonoides* are compared and are declared to be distinct species with differences in the character of the uterus and vagina. In *D. mansonoides* the uterus consists of two series of coils joined by a connecting duct while that of *D. mansoni* usually has four transverse limbs and in no two proglottids of the same strobila is the uterus alike. The vagina in *D. mansonoides* passes posteriad from its vestibule in an approximately straight path whereas in *D. mansoni* it is thrown into lateral undulations of considerable amplitude. Mueller accepts the subgenera

Spirometra and *Diphyllobothrium*. *D. latum* differs from *D. mansoni* and *D. mansonoides* in the shape of the ova and the sluggishness and lack of polarity of the coracidium. Moreover it has several folds of uterus between the vagina and the ventral surface of the proglottid and it has a large muscular bulb or seminal vesicle which in the other species is incorporated in the cirrus sac. *D. mansonoides* occurred in cats in Panama, Louisiana and Japan. From 212 cats from Syracuse, U.S.A., 19 specimens were collected from 10 infected cats. It is suggested that the human cases of sparganosis reported from the United States are infections with the plerocercoid of *D. mansonoides*. So far spargana have not been found in any other vertebrates in the locality. R.T.L.

(339d) Foster gives a comprehensive account of the species of nematodes and their locations in the body as found from autopsies on 17 aged horses and 31 aged mules of the U.S. Army. These equines were imported into the Panama Canal Zone but had resided there for from 5 to 19 years. A description is given of the technique employed for the worm collecting and counting. The relative incidence of the 39 species recovered is given and a comparison made between infections in horses and mules. The numbers found in various sites of the animal body is discussed and the commonest sites recorded. The average numbers of the various species and their comparative frequency as parasites of the equines are given. It was found that *Strongylus vulgaris* was the most constantly found parasite but that *Cylicocyclus nassatus* was the most abundant. J.W.G.L.

(339e) Chandler outlines the history and synonymy of *Schizotaenia americana* and *S. variabilis*, and points out the obvious distinctions. Both species are widely distributed and occur indiscriminately in the two North American porcupines, *Erethizon epixanthum* and *E. dorsatum*. E.M.S.

(339h) From 13 American bison shot in the Wichita National Game Reserve the author collected *Moniezia benedeni*, *Haemonchus contortus*, *Dictyocaulus hadweni* and *Oesophagostomum radiatum*. A table shows the numbers found in each buffalo. R.T.L.

(339i) The " Program and Abstracts " of the 12th Annual Meeting of the American Society of Parasitologists contains the following titles of helminthological interest. Abstracts are given except in the cases of v, xxi, xxiv and xxxviii. (i) A. O. Foster " Parasites of equines in the Panama Canal Zone " ; (ii) J. H. Sandground " *Elaeophora poelli* Railliet and Henry, 1912, in African buffalo and its taxonomic affinities " ; (iii) W. E. Swales " Morphological and biological studies on *Tetrameres crami* Swales, 1933, an important nematode parasite of ducks " ; (iv) B. G. Chitwood " The value of esophageal structures in nemic classification " ; (v) R. L. Mayhew " Some egg and larval characters of nematode parasites of cattle " ; (vi) G. L. Graham " The fecundity of single *Strongyloides ratti* parasites " ; (vii) L. A. Spindler " Effects of various physical factors on the survival of eggs and infective larvae of the swine nodular worm, *Oesophagostomum dentatum* " ; (viii) L. A. Spindler " The effect of tropical sunlight on eggs of *Ascaris suis* " ; (ix) G. F. Otto " Observations on the diagnosis and epidemiology of trichinosis in a Maryland family " ; (x) H. J. Van Cleave " Acanthocephala from

amphibians and reptiles of China " ; (xi) J. A. Scott " Hookworm infestation and hookworm disease in Egypt " ; (xii) W. H. Headlee & R. M. Cable " Studies of intestinal parasite infections of students of Berea College, Kentucky " ; (xiii) D. de Rivas " Diagnosis and treatment of intestinal parasitism by the intra-intestinal thermal method " ; (xiv) J. E. Ackert & A. E. Freeman, jr. " Further studies in ascarid nutrition " ; (xv) T. v. Brand " Observations upon the glycogen relationships in Ascaris " ; (xvi) P. D. Harwood, J. T. Cutler, L. A. Spindler, & S. X. Cross " Retention of guanidine bases, a toxic factor in trichinosis " ; (xvii) A. O. Foster " A relationship in equines between age of host and number of strongylid parasites " ; (xviii) M. C. Hall & B. J. Collins " Studies on trichinosis. I. The incidence of trichinosis as indicated by post-mortem examination of 300 diaphragms " ; (xix) M. C. Hall & B. J. Collins " Studies on trichinosis. II. Some correlations and implications in connection with the incidence of trichinae found in 300 diaphragms " ; (xx) A. J. Sheldon " Studies on active acquired resistance, natural and artificial, in the rat to infection with *Strongyloides ratti* " ; (xxi) E. H. Hinman " A laboratory and clinical analysis of *Strongyloides stercoralis* infection " ; (xxii) J. H. Sandground " A cerebral coenurus from *Cercopithecus nictitans* " ; (xxiii) J. A. Scott " The distribution of *Schistosoma haematobium* and *Schistosoma mansoni* in Egypt " ; (xxiv) T. W. M. Cameron & W. E. Swales " The life history and comparative pathology of *Fascioloides magna* " ; (xxv) A. Porter & H. B. Fantham " Some new cercariae from *Planorbis pfeifferi*, *Melanoides tuberculata* and *Pseudoglessula boivini* " ; (xxvi) H. B. Fantham & A. Porter " The pathology of two trematode infections of *Lymnaea natalensis* " ; (xxvii) T. O. Odlaug " Notes on the development of *Gorgodera amplicava* in the final host " ; (xxviii) A. A. Paul " Studies on North American polystomes " ; (xxix) L. W. Remley " Morphology and life history studies of *Microcotyle spinicirrus*, a monogenetic trematode from the gills of *Aplinodonotus grunniens*" ; (xxx) W. E. Martin " A sporozoan parasite of larval trematodes " ; (xxxi) A. McIntosh " The occurrence of *Euryhelmis squamula* (Rudolphi, 1819) in the United States " ; (xxxii) L. S. Ritchie " The specific validity of the human and pig ascaris, based on a comparative study of spermatogenesis and oogenesis " ; (xxxiii) G. W. Luttermoser " Experimental infestations of rats and mice with *Capillaria hepatica* " ; (xxxiv) A. C. Walton " The life cycle of *Ophidascaris labiatopapillosa* Walton, 1927 " ; (xxxv) A. C. Walton " A suggested life cycle for *Multicaecum tenuicolle* (Rud., 1819) Walton, 1927 " ; (xxxvi) W. W. Wantland " Effect of irradiated ergosterol on trichinized white rats " ; (xxxvii) W. W. Wantland, C. Hansen & R. E. Feeney " Effect of irradiated ergosterol and irradiated milk on calcification of trichina cysts in cats " ; (xxxviii) R. Hegner " Parasite reactions to host modifications " ; (xxxix) A. V. Hunninen & R. Wichterman " Hyperparasitism : a species of *Hexamita* (Protozoa, Flagellata) found in the reproductive systems of *Deropristis inflata* (Trematoda) from marine eels " ; (xl) G. W. Hunter III. " Penetration of the common sunfish by the Holostome cercaria, *C. multicellulata* " ; (xli) T. W. M. Cameron " On the life history of *Apophallus venustus* with observations on the life history of *Parametorchis* in Canada " ; (xlii) H. W. Stunkard " The life cycle of *Cercariaeum lintoni* Miller and Northrup " ; (xliii) J. F. Mueller " The life history of *Diphyllobothrium*

mansonoides" ; (xliv) J. E. Ackert & W. M. Reid "The house fly and fowl tapeworm transmission" ; (xlv) H. J. Bennett & J. D. Re "Parasites of *Amphiuma tridactylum*" ; (xlvi) R. M. Cable "Experimental studies on the trematode *Parochis acanthus* Nicoll" ; (xlvii) M. S. Ferguson "Experimental studies on *Neascus vancleavei*" ; (xlviii) H. W. Manter "A note on the geographical distribution of the genus *Haplosplanchnus* (Trematoda)" ; (xlix) J. F. Mueller "Some peculiarities in the occurrence of Gyrodactyloid trematodes on North American fishes." B.G.P.

340—Journal of the Philippine Islands Medical Association.

a. GARCIA, E. Y., 1936.—"Study on the resistance of the metacercariae of *Monorchotrema taihokui* to different physical [and] chemical agents." **16** (9), 561–565.

b. AFRICA, C. M. & GARCIA, E. Y., 1936.—"A new nematode parasite *Cheilospirura* sp. of the eye of man in the Philippines." **16** (10), 603–607.

(340a) Encysted cercariae of *Monorchotrema taihokui* occur in the fresh water fish *Arius manilensis* in the Philippines. Garcia finds that moist heat is the most practical way of killing them, 55 C. for 10 minutes proving fatal. The cysts contain living metacercariae after refrigeration for 2 to 3 days. In vinegar, salt, garlic and ginger they survive about 2 hours. R.T.L.

(340b) Two nematode fragments extracted from a nodule in the conjunctiva of the right lower eyelid of an old farmer residing in Biñang, Laguna, Philippines are diagnosed as belonging to the genus *Cheilospirura*. R.T.L.

341—Journal of the Public Health Association of Japan.

a. OGURA, K., 1936.—"Parasite eggs and *Endamoeba hystoritica* [*histolytica*] retained under finger nails of school children in Keijo, Chosen." **12** (7), 1–4.

(341a) Of 300 children from a primary school in Keijo, Chosen, 34, i.e., 11·34% were found to have helminth eggs under their finger nails. Of these 6 had Ascaris eggs, one threadworm eggs; tapeworm eggs were present in 21 and lung distome in one. R.T.L.

342—Journal d'Urologie.

a. DIAMANTIS, A. & XYLINAS, E., 1936.—"A propos de la reproduction expérimentale de la bilharziose chez les cobayes." **41** (2), 142-147.

343—Journal of the Washington Academy of Sciences.

a. CHITWOOD, B. G. & CHITWOOD, M. B., 1936.—"The histology of nemic esophagi. VI. The esophagus of members of the Chromadorida." **26** (8), 331-346.

b. STEINER, G., 1936.—"*Anguillulina askenasyi* (Bütschli, 1873), a gall forming nematode parasite of the common fern moss, *Thuidium delicatulum* (L.) Hedw." **26** (10), 410–414.

c. CHITWOOD, B. G. & CHITWOOD, M. B., 1936.—"The histology of nemic esophagi. VII. The esophagus of *Leidynema appendiculatum* (Leidy, 1850)." **26** (10), 414-419.

(343a) In this sixth contribution by Chitwood & Chitwood to the histology of the nematode oesophagus, they deal with representatives of the following free-living families: Plectidae, Camacolaimidae, Axonolaimidae, Comesomatidae, Cyatholaimidae, Tripyloididae, Desmodoridae, Chromadoridae, Monhysteridae, Linhomoeidae and Siphonolaimidae. The paper follows the same plan as previous contributions to this series in setting out in tabular form the distribution and character of the nuclei of the chief regions of the eosophagus with many text figures. T.G.

(343b) Steiner gives a well illustrated description of *Anguillulina askenasyi* (Bütschli, 1873) a species which causes galls on certain mosses. It was made a synonym of *Anguillulina dipsaci* by Ritzema Bos in 1888 but Steiner re-establishes it as a distinct species and differentiates it from *A. dipsaci* on the grounds of its stouter build, the more anterior position of the vulva, the shape of the male caudal alae and the shape of the eggs. *A. askenasyi* has now been reported from galls on two mosses, namely *Hypnum cupressiforme* Hooker and *Thuidium delicatulum* (L.) Hedw. T.G.

(343c) Chitwood & Chitwood, in their seventh contribution to the histology of the nematode oesophagus, deal with the oesophagus of *Leidynema appendiculatum* (Leidy, 1850). They set out in detail the distribution and character of the nuclei in the following regions: precorpus, postcorpus, isthmus, prevalvar and valvar region, postvalvar region and oesophago-intestinal valve. T.G.

344—Klinische Wochenschrift.

a. BÜCHNER, O., 1936.—"Anguilluliasis." **15** (51), 1889-1892.

(344a) Büchner gives clinical reports on two cases of *Strongyloides stercoralis* infection. B.G.P.

345—Lingnan Science Journal.

a. CHEN, H. T., 1936.—"*Rictularia tani* Hoeppli from rats in Canton (Nematoda: Rictulariidae)." **15** (2), 283-286.
b. WALLACE, F. G., 1936.—"*Polydelphis attenuata* (Nematoda: Ascaridae) from a Hainan python." **15** (2), 309-310.
c. WALLACE, F. G., 1936.—"Two new trematode parasites of Canton snakes (Trematoda: Lepodermatidae)." **15** (3), 355-363.

(345a) Chen describes for the first time the male of *Rictularia tani* and redescribes the female. *R. whartoni* Tubangui, is probably a synonym. B.G.P.

(345c) Wallace describes and figures *Saphedera cantonensis* n. sp. from the lungs of *Natrix piscator*, and *Encyclometra asymmetrica* n. sp. from the stomach and oesophagus of *N. piscator* and other snakes. There is circumstantial evidence that metacercariae found encysted in the muscles of frogs from the same locality are attributable to the second species. B.G.P.

346—Magasin de Parasitologie.

a. SMIRNOV, G. G., 1936.—"On the viability of *Ascaris* eggs." **6**, 385-403. [In Russian: English summary p. 403.]
b. ZMEJEV, G. J., 1936.—"Les trématodes et les cestodes des poissons de l'Amour." **6**, 405-435. [In Russian: French summary p. 436.]
c. BYCHOVSKY, B., 1936.—"Parasitological investigations at the Baraba Lakes. I. Fauna of the fish parasites." **6**, 437-480. [In Russian: English summary pp. 480-482.]

(346a) Smirnov gives a critical review of papers on the viability of Ascaris eggs. He considers that their marked resistance to adverse conditions is principally due to the inner semipermeable membrane. Viability experiments were carried out to show the resistance of Ascaris eggs at different stages and it was found that *Ascaris suilla* and *Parascaris equorum* eggs withstood the winter. Movement of the embryo within the egg-shell is not a criterion of infectivity. J.W.G.L.

(346b) Zmejev reports the common occurrence of the metacercaria of *Metagonimus yokogawai* in various fishes of the Amour basin—he has infected kittens by feeding infested scales. He reports 20 species of cestodes and trematodes, and several larval forms from 26 host fishes of various species. He creates a new genus of the family Gorgoderidae, *Vitellarinus pavlovskii* n. g., n. sp., distinguished from other genera of the family by its ramified vitellaria. Other new species described are: *Azygia amuriensis* n. sp., *Caryophyllaeus parvus* n. sp., *Tetracampus magnus* n. sp. Diagnoses of new species are given in French. E.M.S.

(346c) Bychovsky records 65 species of parasites, of which 48 are helminthic, there being 27 trematodes, 11 cestodes, 9 nematodes and 1 acanthocephalan. The survey is an ecological one, and is concerned with the differences in fauna of the 5 lakes constituting the group. A later paper is to deal similarly with the birds of the region, the larval stages of many of whose parasites are listed here as fish parasites. Differences in number of forms in the different lakes are ascribed to differences in salt content, and this conclusion helps to explain peculiarities of the Aral and Caspian seas. E.M.S.

347—Malayan Medical Journal.

a. WOLFE, E. D. B., 1936.—"Some notes on a hookworm and roundworm survey." **11** (4), 224-225.

(347a) Five schools in different types of locality in Pahang East were surveyed. Of 460 children 77% had roundworm, 32% hookworm and 24·3% had infections with both worms. R.T.L.

348—Marseille Médical.

a. PIÉRI, J. & SARDOU, 1936.—"A propos d'un cas de bilharziose vésicale traité par le 110 L (antimoniothiomalate de lithium)." **73** (16), 749-754.

(348a) This also has appeared in Bull. Soc. Path. Exotique, **29** (5), 508-513 [Helm. Abs., Vol. V, No. 105c].

349—Medical Officer.

a. BUTCHER, W. H., 1936.—" Further observations on roundworm infestation." **56** (12), 124-125.

(349a) Butcher dealing with the persistence of *Ascaris lumbricoides* infestation in certain dwellings in the parish of Horne [Surrey] since 1928 reports that the infestation is due to " door-yard " pollution and to the failure of any improvement in personal habits of the occupants as a result of instruction. R.T.L.

350—Medical Parasitology and Parasitic Diseases.

a. SKRJABINE, K., 1936.—" Organisation de la lutte contre les helminthoses de l'homme dans l'URSS." **5** (5), 647-656. [In Russian : French summary p. 656.]
b. VASSILKOVA, Z., 1936.—" Sur la déshelminthisation des eaux d'égout épurées par methodes intenses." **5** (5), 657-673. [In Russian : French summary pp. 673-674.]
c. ZATOURENSKAYA, B. & VICHNEVSKAYA, S., 1936.—" Sur l'action de certains facteurs chimiques et physiques sur les oeufs d'*Ascaris lumbricoides*." **5** (5), 675-678. [In Russian : French summary p. 679.]
d. DINNIK, N., 1936.—" L'influence de la température et de l'absence de l'oxygène sur l'évolution des oeufs de *Trichocephalus trichiurus* (L.) après leur sortie de l'intestin de l'homme." **5** (5), 680-685. [In Russian : French summary p. 686.]
e. LUBIMOV, V., 1936.—" Sur les états anémiques dans les helminthoses." **5** (5), 687-691. [In Russian : French summary p. 691.]
f. DAVYDOV, P., 1936.—" Sur l'influence d'ascaridose sur l'apparition et l'évolution des colites chez les enfants." **5** (5), 692-693. [In Russian : French summary p. 694.]
g. PETROVYKH, A., 1936.—" Sur la symptômatologie de l'ascaridose." **5** (5), 695. [In Russian : French summary, p. 696.]
h. POLLER, L., 1936.—" Sur la période d'incubation dans la trichinellose." **5** (5), 697-699. [In Russian : French summary p. 699.]
i. EROFEEV, P., 1936.—" Sur l'anatomie pathologique de l'ascaridose." **5** (5), 700-706. [In Russian : French summary p. 706.]
j. KOTLIARTCHOUK, P., 1936.—" L'ascaridose de l'homme d'après les données de l'autopsie." **5** (5), 707-711. [In Russian : French summary p. 712.]
k. MIRETSKI, O., 1936.—" Three cases from the practice of a helminthological dispensary." **5** (5), 810-811. [In Russian.]
l. SEITENOK, N. & KOLOSSOV, N., 1936.—" Observations on the infestation of man with *Hymenolepis diminuta*." **5** (5), 811-812. [In Russian.]
m. BELOVA, O., 1936.—" A case of infection of a child with *Hymenolepis diminuta*." **5** (5), 813-814. [In Russian.]
n. TUAEV, S., 1936.—" On the treatment of enterobiosis with carbon tetrachloride." **5** (5), 814. [In Russian.]
o. SCHIKHOBALOVA, N. P., 1936.—" Étude helminthologique de la population aborigène de la région autonome des Kabardes et des Balkars." **5** (6), 958-960. [In Russian.]

(350b) Vassilkova has found five species of helminth eggs in the effluents of Moscow sewage plants. By counting eggs at various stages in treatment of the sewage, it is shown that the greatest destruction of the eggs (up to 97%) occurs in the Imhoff tanks. The sedimentation tanks also remove

a large number of eggs from the effluent but these remain viable in the deposited sludge, which is subsequently used for fertilizing vegetables. Methane-fermentation of the sludge destroys 20% of the eggs, and it is suggested that this process should be carried out at the lethal temperature of 45°C. B.G.P.

(350c) Zatourenskaya & Vichnevskaya conclude that chloride of lime is unsatisfactory for the control of ascaris. Even 50% solutions were not completely fatal. Fully embryonated eggs were more resistant to adverse chemical and physical factors than unembryonated eggs. Embryonated eggs survived drying for a period up to 48 days. B.G.P.

(350d) The development of Trichuris eggs is merely arrested by a temperature of 0° C. or by a medium free from oxygen : it continues on the resumption of normal conditions. Dinnik describes freshly-passed eggs as containing the two pronuclei, which fuse after 14 to 18 hours in water at 28 to 30° C. (optimum). Fusion is followed by a prolonged resting period. B.G.P.

(350h) The incubation period of Trichinelliasis was in 23 cases from 15 to 24 days and in 70% of these cases 20 to 24 days. The earliest diagnostic symptom was oedema of the eyelids and face accompanied by an intense eosinophilia. Diarrhoea may be absent in the early stages. R.T.L.

(350j) In 500 autopsies the author found evidence of ascariasis in 50%. Five of the cases showed (i) perforation of an inflamed appendix, (ii) invasion of the bile duct by 10 worms and of the hepatic duct by several other worms, (iii) perforation of the small intestine, (iv) severe localized enteritis, and (v) presence of ascaris worms in the respiratory tract associated with signs of asphyxia. R.T.L.

(350l) Six cases of *Hymenolepis diminuta* in man have been reported from Soviet Russia. Another case is described by Seitenok & Kolossov in which the removal of a single worm coincided with the rapid subsidence of symptoms of severe vertigo, continual nausea, frequent vomiting and rheumatic pains in the limbs. R.T.L.

351—Minnesota Medicine.

a. BAKER, A. B., 1936.—" Cysticercosis of the central nervous system." **19** (8), 495-504.

(351a) Baker summarizes the literature of cysticercosis of the cerebrum, cerebellum and spinal cord. On account of the paucity of reports in American literature a full description of a case seen in Minnesota which showed clinical symptoms of a diffuse meningo-encephalitis is given. Numerous calcified nodules scattered through the brain were seen by X-ray and many cyst walls were obtained by spinal tapping which materially assisted in the clinical diagnosis. At post-mortem there was an extensive basilar meningitis with numerous compressed vesicles enmeshed within the brain and cord membranes. Numerous calcified cysts were found within the brain substance and meninges. R.T.L.

352—Münchener Medizinische Wochenschrift.

a. OHL, 1936.—" Praktische Erfahrungen mit dem neuartigen Wurmmittel Helmofix." **83** (42), 1719-1720.

(352a) Ohl reports favourably on the use of a proprietary anthelmintic, " Helmofix." The capsules are easily administered and contain thymol, kamala, Ol. ricini and paracymol which is synthetically prepared and standardized. Of 123 cases treated 90% were found by faecal examination to be free from Ascaris and Oxyuris after the 8th day, the remaining 10% were retreated 6 weeks later and a permanent cure effected. The dose recommended is 3 capsules per adult and 2 for children. K.S.

353—Nature. London.

a. TETLEY, J. H., 1936.—" Route of migrating parasites in ruminants." [Correspondence.] **138** (3497), 802.

(353a) Tetley reports the finding, at a post-mortem on a hogget, of an undamaged specimen of *Dictyocaulus filaria* in the small intestine and remarks on its escape from crushing by the process of rumination. R.T.L.

354—New Zealand Medical Journal.

a. JOHNSTON, T. H., 1936.—" A note on the occurrence of the nematode *Gongylonema pulchrum* in man in New Zealand." **35** (187), 172-176.
b. BARNETT, L., 1936.—" Hydatid disease in New Zealand. Prevalence, prevention and research." **35** (188), 214-220.

(354b) Barnett gives statistical evidence of the prevalence of hydatid disease in New Zealand during the last 45 years. While tending to decrease in man it is increasing among stock to unnecessarily high percentages. Among sheep and cattle 80% or more show cysts in the liver. P.A.C.

355—Norsk Veterinaer-Tidsskrift.

a. AMUNDSEN, H. & ØKLAND, F., 1936.—" Dødelig enteritis hos duer, forårsaket av ikten *Echinoparyphium paraulum* (Dietz)." **48** (1), 25-27. [German summary p. 27.]
b. WESTERHEIM, O., 1936.—" Lungeormsykdom på geit i Indre Ryfylke." **48** (5), 201-216.

(355a) Amundsen & Økland report on a serious haemorrhagic enteritis in pigeons, apparently due to heavy infections of *Echinoparyphium paraulum* which has not hitherto been recorded from Norway. B.G.P.

(355b) In the humid climate of the Ryfylke district of Norway, lungworm disease is common and serious in goats. Westerheim gives a general account of the condition and discusses control measures, including treatment by intratracheal injections and inhalation of cresol preparations. B.G.P.

356—North American Veterinarian.

a. CORENZWIT, H. M., 1936.—"Canine endoparasites." **17** (11), 37-40.
b. ALICATA, J. E. & MORRISON, R. H., 1936.—"A note on the occurrence of the heartworm, *Dirofilaria immitis*, in the eye of a dog." **17** (11), 41-42.
c. SPINDLER, L. A., 1936.—"Effect of ferrous sulphate and copper sulphate on experimental infection of pigs with the nodular worm, *Oesophagostomum dentatum*." **17** (12), 29-32.

(356a) A survey of the helminth parasites of 200 stray dogs destroyed during a rabies quarantine in Philadelphia is given by Corenzwit. Identification was carried as far as was possible solely by macroscopic examination. Incidence was low for hookworms at 17% and for ascaris at 17% but comparatively high at 14% for *Dirofilaria immitis*. The relationships between age and condition with parasitism are discussed. *Oncicola canis* is recorded in the dog in Pennsylvania for the first time. J.W.G.L.

(356b) A dog in Honolulu was found to have a nematode, about two inches long, moving in a serpentine manner in the aqueous humor of the eye. This was identified as *Dirofilaria immitis*. The symptoms noted in connection with the presence of this parasite were slight conjunctivitis, increased lachrymal discharge and slight opacity of the cornea. The parasite apparently produced a certain amount of irritation or cloudiness as evidenced by the occasional desire of the dog to rub its eye. J.W.G.L.

(356c) Spindler's small scale experiments on young pigs suffering from nutritional anaemia showed that treatment with a solution containing copper and iron sulphate caused larger increases in body weight than occurred in control animals. Although feeding with *Oesophagostomum dentatum* larvae was carried out in both experimental and control animals, at autopsy the experimental animals were found to contain far greater numbers of adult *O. dentatum* than the controls. The author concludes that copper and iron sulphate are beneficial to *O. dentatum* or that the nutritional anaemia was so detrimental to the parasites that they were unable to grow and maintain themselves in the affected animal. J.W.G.L.

357—Okayama-Igakkai-Zasshi.

a. MATUO, K., 1936.—"Beiträge zum Mechanismus der anthelmintischen Wirkung des Wasserauszuges von *Punica granatum* L." **48** (12), 2931-2937. [In Japanese: German summary p. 2930.]

(357a) Matuo has examined the anthelmintic effect of extracts obtained from the pomegranate tree. He concludes that these extracts cause paralysis of the muscles of intestinal parasites, which thus lose their power of adhering to the intestinal wall and are expelled along with waste-food material. R.H.H.

358—Parasitology.

a. FAUST, E. C. & CHUNG-CHANG TANG, 1936.—"Notes on new Aspidogastrid species, with a consideration of the phylogeny of the group." **28** (4), 487-501.

(358a) Faust & Chung-Chang Tang describe *Cotylaspis sinensis* n. sp. and *Lophotaspis orientalis* n. sp. both in the small intestine of *Amyda tuberculata*

from China, and *Stichocotyle cristata* n. sp. in the spiral valve of *Rhinoptera quadriloba* from Mississippi. They divide *Stichocotyle* into two new subgenera, *S.* (*Stichocotyle*) for *S. nephropis* having two testes, and *S.* (*Multicalyx*) for *S. cristata* having one testis. Discussing this curious group of worms, they erect for it a new subclass ASPIDOGASTREA, placed between the MONOGENEA and DIGENEA, and they remove *Stichocotyle* from the family Aspidogastridae into a new family, Stichocotylidae, having only one row of sucking cups. B.G.P.

359—Paris Médical.

a. FINCK, C. J., 1936.—" De l'oxalurie d'origine parasitaire." **26** (29), 62-64.

(359a) Oxaluria is found in various helminth infections, e.g., Ascaris and Taenia. Forty-five cases associated with Ascaris infection are analyzed. Finck attributes the presence of oxalate crystals to disturbances in the external secretion of the pancreas. R.T.L.

360—Philippine Journal of Public Health.

a. AFRICA, C. M., LEON, W. DE & GARCIA, E. Y., 1936.—" Heterophyidiasis, IV : Lesions found in the myocardium of eleven infested hearts including three cases with valvular involvement." **3** (1/2), [Reprint 27 pp.]

(360a) A certain number of adult Heterophyid flukes wander into the deeper layers of the intestinal mucosa when eggs are liberated by their disintegration and passing into the general circulation are caught up in the cardiac vessels. There the eggs, acting in a mechanical way, produce acute vascular changes in the myocardium such as extensive oedema, capillary injection and embolism, thrombus formation, haemorrhages and fragmentation of the muscular fibres. The tissue reactions indicate that the infection is not an acute one. Uniform histopathological findings occurred in the myocardium in 10 out of 11 cases recorded in this paper. In 6 cases the anatomical diagnosis was cardiac beri-beri. In 3 cases eggs or egg remnants were found in the interior of sclerotic leaflets of the mitral valves. A large number of them were found encrusted or mummified in calcified masses or enmeshed in fibrotic areas undergoing hyalinization. R.T.L.

361—Philippine Journal of Science.

a. AFRICA, C. M., REFUERZO, P. G. & GARCIA, E. Y., 1936.—" Observations on the life cycle of *Gnathostoma spinigerum*." **59** (4), 513-521.
b. ROSARIO, F. DEL, 1936.—" *Dirofilaria immitis* Leidy and its culicine intermediate hosts in Manila. I." **60** (1), 45-55.
c. GARCIA, E. Y. & REFUERZO, P. G., 1936.—" Two more species of the genus *Stictodora* Looss, 1899, in the Philippines, with description of a new species." **60** (2), 137-139.
d. TUBANGUI, M. A. & MASILUNGAN, V. A., 1936.—" Trematode parasites of Philippine vertebrates, VIII. Flukes from a cobra and a crocodile." **60** (3), 255-263.

(361a) Although *Gnathostoma spinigerum* occurs in cats in the Philippines cases in man are unknown. Chandler (1925) found encysted larval gnathostomes in several snakes but these when fed to cats were found in the liver,

in the renal capsule and in the peritoneal parietal wall. Prommas & Daengsvang (1933) infected cyclops and concluded that infestation by adults was acquired by drinking water containing infected cyclops. The authors have found, at Laguna de Bay, gnathostome larvae encysted in the muscles of the freshwater fish *Glossogobius giurus* (100%), *Ophiocephalus striatus* (25%) and *Therapon argentius* (12·6%). While there was a common natural infection in cats in the neighbourhood, in the local dogs only immature worms occurred in the liver. When the larval stages from the infected fishes were fed to white rats larvae of increased size and development were recovered from the liver and skeletal muscles. R.T.L.

(361b) In Manila del Rosario has ascertained that *Dirofilaria immitis* can be experimentally transmitted by two local mosquitoes, viz., *Culex quinquefasciatus* and *Aëdes aegypti*. Of 149 specimens of the former 72·4% and of the latter 73·8% were found infective. The infective stages were dissected from the labium. In *Aëdes aegypti* dissections showed a heavy worm infection. R.T.L.

(361c) Garcia & Refuerzo report two heterophyid flukes of the genus *Stictodora*, hitherto unknown in the Philippines, from the intestine of the dog and of birds, *Larus ridibundus*. One trematode is new to science and is named *Stictodora guerreroi*. The other is provisionally referred to *S. sawakinensis* Looss. E.M.S.

(361d) Tubangui & Masilungan describe *Acanthostomum elongatum* n. sp., *A. atae* n. sp., *Neodiplostomum crocodilarum* n. sp., *Harmotrema rudolphii* n. sp., all from *Crocodilus porosus*, and *Harmotrema eugari* n. sp., from a snake of the genus *Naja*. E.M.S.

362—Phytopathologische Zeitschrift.

a. KALINENKO, V. O., 1936.—" The inoculation of phytopathogenic microbes into rubber-bearing plants by nematodes." 9 (4), 407-416.

(362a) Kalinenko has found that the roots of two new rubber-yielding plants, *Taraxacum kok-saghys* Rodin and *Scorzonera tau-saghys* Lip. & Bos., are invaded by nematodes, including *Anguillulina pratensis*, *A. multicincta* and *Aphelenchus avenae*, which damage the tissues and inoculate them with phytopathogenic microorganisms. The latter were cultivated from outside and inside the nematodes by means of agar plates and were found to belong to 5 groups of bacteria. The same groups were also obtained from roots of naturally diseased plants. Roots of healthy plants were infected, by pricking them with fine glass needles wetted with mixtures of the cultivated bacteria obtained from the nematodes, with the result that typical symptoms of root disease were set up. T.G.

363—Phytopathology.

a. ARK, P. A. & THOMAS, H. E., 1936.—" *Anguillulina pratensis* in relation to root injury of apple and other fruit trees." 26 (12), 1128-1134.

(363a) Ark & Thomas have found *Anguillulina pratensis* attacking roots of apple and other fruit trees in California associated with dieback and rosette or little leaf. The fine feeding roots become discoloured, thickened and

stunted, sometimes forming much branched tufts. The authors consider that the mechanical damage done by the parasites to the cortical tissues may account for much of the injury suffered by the trees. Coupled with this is the opening up of the roots to invasion by various harmful microorganisms. The paper is well illustrated with photomicrographs. T.G.

364—Prager Tierärztliches Archiv.

a. KORKISCH, H., 1936.—"Trichinenfund im Schlachthof Bodenbach." **16** (5), 117-118.

(364a) Korkisch lists the various muscles found infected with Trichinella in a heavily infected pig detected by the routine Trichinella Inspection at the Bodenbach Slaughterhouse. B.G.P.

365—Prensa Médica Argentina.

a. SEARA, P., 1936.—"Hidatidosis pulmonar múltiple metastática." **23** (5), 316-337.
b. BASCH, F., 1936.—"Hidatidosis peritoneal múltiple." **23** (13), 795-800.

366—Prescriber.

a. CAWSTON, F. G., 1936.—"The lithium salts of antimony in bilharzia infection." **30** (7), 233-234.

(366a) As lithium antimony-thiomalate has a low toxicity to man Cawston has tried it intravenously on cases of Bilharzia infection in children in Natal. Even though the maximum repeated dose contained less than half the amount of antimony contained in the maximum repeated dose of tartar emetic its therapeutic effect seemed to be greater judging by the more rapid destruction of the escaping ova. The drug is less irritating than tartar emetic. R.T.L.

367—Presse Médicale.

a. CHABRUN, J. & MOUCHET, A., 1936.—"Kyste hydatique suppuré du foie décelé par une injection d'air et de lipiodol dans la cavité kystique." **44** (16), 311-313.
b. POIX, G. & ETIENNE, R., 1936.—"Kyste hydatique du poumon." **44** (22), 441-442.
c. BELOT, J. & PEUTEUIL, G., 1936.—"Le problème radiologique du kyste hydatique du poumon. Les éléments de son diagnostic positif." **44** (34), 696-700.
d. RAMOND, L., 1936.—"Kystes hydatiques du foie à symptomatologie polymorphe." **44** (45), 927-928.

368—Proceedings of the Biological Society of Washington.

a. BARTSCH, P., 1936.—"A new intermediate host of the Asiatic blood fluke, *Schistosoma japonicum*." **49**, 139-141.

(368a) *Katayama tangi* n. sp. is described and recorded as a new host for *S. japonicum* in Fukien Province, China. R.T.L.

369—Proceedings of the Indian Academy of Sciences. Section B.

a. NATH, B. V., 1936.—"Disease resistance in plants in relation to nutrition balance." **3** (6), 459-469.

(369a) Nath describes a case of crop failure of Betel Vine, associated with *Caconema* (*Heterodera*) *radicicola* and *Rhizoctonia*, in which bad soil conditions were shown to be the primary factor causing degeneration of the crop. M.J.T.

370—Proceedings of the National Academy of Sciences, India.

a. SRIVASTAVA, H. D., 1936.—"New Allocreadids (Trematoda) from Indian marine fishes. Part II. New parasites of the genus *Decemtestis* Yamaguti, 1934." **6** (3), 187-195.
b. MEHRA, H. R., 1936.—"A new species of the genus *Harmotrema* Nicoll, 1914 with a discussion on the systematic position of the genus and classification of the family Harmostomidae Odhner, 1912." **6** (3), 217-240.
c. VERMA, S. C., 1936.—"Studies on the family Bucephalidae (Gasterostomata), Part II. Descriptions of two new forms from Indian marine fishes." **6** (3), 252-260.

(370a) Srivastava describes *Decemtestis brevicirrus* n. sp. from *Sillago sihama*, *D. mehrai* n. sp. from the same fish, and *D. biacetabulata* n. sp. from *Scomber micropeditorus*. The last has two concentric acetabula. He gives a key to the six known species, and a generic diagnosis, of *Decemtestis*. B.G.P.

(370b) Mehra describes *Harmotrema nicollii* n. sp. from *Gavialis gangeticus*, and gives a key to the three known species. He then discusses the classification of the Harmostomidae, giving a key to the subfamilies, and keys to the genera of each subfamily. Into this family he brings the Liolopidae, Leucochloridiidae and Hasstilesiidae, reducing them to subfamilial rank. B.G.P.

(370c) Verma describes *Bucephalus jagannathai* n. sp. from *Cymbium guttatum* and *Prosorhynchus truncatus* n. sp. from *Arius jatius*. B.G.P.

371—Proceedings of the Society for Experimental Biology and Medicine.

a. BACHMAN, G. W. & GONZÁLEZ, J. O., 1936.—"Immunization in rats against *Trichinella spiralis*." **35** (2), 215-217.
b. EISENBRANDT, L. L., 1936.—"Precipitin reactions of helminth extracts." **35** (2), 322-325.

(371a) Bachman & González have attempted to immunize rats against infection with *Trichinella spiralis*. Protection for a short time was achieved by feeding small but gradually increasing doses of trichinous flesh. No immunity was conferred by feeding them with trichinous antiserum from rabbits and convalescent serum from pigs or by means of pulverized dried trichina worms in suspension. Eosinophilia occurred in all the rats which survived the experiment but did not develop before the 12th day. There was a rise in neutrophiles during the intestinal stages of the infection. P.A.C.

(371b) Eisenbrandt has examined extracts of *Dirofilaria immitis*, *Macracanthorhynchus hirudinaceus*, *Dipylidium caninum* and *Moniezia alba* and finds that the nitrogen and protein concentration is low, but high enough to produce a high titre of antisera when injected into rabbits. Antisera react strongly in precipitation with their homologous antigens, less strongly so with foreign antigen. It is interesting to note, however, a strong reaction between antisera of Acanthocephala and antigen of Cestoda, suggesting a closer affinity than is generally assumed. P.A.C.

372—Proceedings of the Zoological Society of London.

a. HAMERTON, A. E., 1936.—" Report on the deaths occurring in the Society's Gardens during the year 1935." 1935, Part 3, 659-686.

373—Profilassi.

a. CERRUTI, C. G., 1936.—" Sulla microfilariosi ematica dei bovini della Sardegna. Le microfilariosi in Italia." **9** (1), 10-12.

(373a) Cerruti has found in Sardinia: *Microfilaria immitis* quite commonly in dogs, an unknown ensheathed microfilaria from the bird *Carduelis carduelis*, and another unknown ensheathed microfilaria showing diurnal periodicity in cattle. B.G.P.

374—Przegląd Weterynaryjny.

a. GAUGUSCH, Z., 1936.—" Badania nad własnościami antygennemi wągra nierogacizny." **49** (3), 163-167. [German summary p. 167.]

(374a) Gaugusch has prepared antigens from the cysticercus of pigs. A good one can be prepared from the head and neck of the larva but the fluid from the bladder does not lead to very successful results in the preparation of antigen. His methods are described in detail. P.A.C.

375—Quarterly Bulletin of the Health Organisation. League of Nations.

a. ANON, 1936.—" Report of the Pan-African Health Conference. VII. Animal diseases communicable to man. D. Helminthiasis." **5** (1), 181-183.

(375a) The Pan African Health Conference held in Nairobi in 1936 adopted the following resolutions: The conference (i) recommends the abolition of all insurance schemes intended to compensate farmers for slaughter animals found to be infected with measles and (ii) urges that an endeavour be made to improve hygienic conditions on farms and the taking of all steps necessary to prevent the infection of animals with Cysticercus.

In an Annex submitted by P. J. du Toit, Mönnig deals with " Internal Parasites in relation to Meat Supplies." If man were looked on as a source of infection of domesticated animals with cestode parasites the problem of control would be more rapidly and satisfactorily solved. While everything is directed towards the protection of man, save amongst the less fortunately situated sections of the population in the tropics, the food animals themselves

now constitute the chief problem. The farmer is interested in his animals and possible economic losses rather than in the health of his servants and he does not realize that the problem will never be solved unless it is tackled at the root, the permanent source of infection, i.e., man. The author is convinced that schemes of insurance against measles are opposed to the successful control of cestode parasites of man and, if abolished, would force the farmer to pay greater attention to the source of infection. R.T.L.

376—Queensland Agricultural Journal.

a. ROBERTS, F. H. S., 1936.—"Studies on the biology and control of the large roundworm of fowls, *Ascaridia galli* (Schrank 1788) Freeborn 1923." **46** (3), 328-356; (4), 468-479; (5), 586-601; (6), 729-746.

(376a) Continuing his observations on Ascaridia infections in chickens, Roberts notes the fact that growth is retarded while repeated infections may cultivate a resistance, enabling the bird to achieve some degree of resistance, such resistance being due to the presence of growth inhibiting factors in the blood. It is not localized in the intestinal mucosa. Lesions due to the presence of larvae in gut and liver are described. For individual treatment CCl_4 is most satisfactory, while nicotine sulphate is recommended for mass treatment. Further field trials are, however, necessary. P.A.C.

377—Revista Médica Peruana.

a. IGLESIAS, A. S., 1936.—"El parasitismo intestinal en la población escolar de San Ramón y algunas sugerencias de órden profiláctico." **8** (89), 306-316.

(377a) There is a high incidence and intensity of intestinal parasitism in the San Ramón district of Peru, where Iglesias found all the school children infected with one or more species, the more common being trichuris (96% incidence), ascaris (59%), strongyloides (33%), *Ancylostoma* (15%). He briefly discusses general methods of treatment and control. B.G.P.

378—Revue de Médecine et d'Hygiène Tropicales.

a. PANAYOTATOU, A., 1936.—"Recherches sur l'action de l'antimoniothiomalate de lithium dans la bilharziose vésicale (*Bilharzia hematobium* [*haematobia*]) à Alexandrie d'Egypte 1936." **28** (6), 322-325.

(378a) Panayotatou has used Anthiomaline, which is a 6% salt solution of antimony lithium thiomalate, in the treatment of twelve patients infested with vesical Bilharzia. In each case, 8 to 10 injections of the drug were given, the doses being 1 c.c. for the first injection, 2 c.c. for the next 3 injections, and 3 c.c. for the remaining injections. In each case only dead eggs were found on examination of the urine after the 4th injection, and all symptoms of the disease had disappeared by the 7th injection. The drug was well tolerated, and it is suggested that fewer but larger doses might be used advantageously. The injections were given intramuscularly. K.S.

379—Revue Médicale de la Suisse Romande.

a. BAER, J. G., 1936.—" Un cas intéressant de trichostrongylose chez des enfants." **56** (8), 479-482.

380—Revue Suisse de Zoologie.

a. DUBOIS, G., 1936.—" Nouveaux principes de classification des Trématodes du groupe des Strigeida. (Note préliminaire)." **43** (3), 507-515.
b. FUHRMANN, O., 1936.—" *Gynandrotaenia stammeri* nov. gen., nov. spec." **43** (3), 517-518.
c. BAER, J. G., 1936.—" La schizogenèse chez les cestodes." **43** (3), 525-530.
d. KREIS, H. A., 1936.—" Süsswasser-Nematode aus der Umgebung von Madras (Indien)." **43** (4), 641-645.
e. KREIS, H. A., 1936.—" Beiträge zur Kenntnis parasitischer Nematoden. III. *Contortospiculum filiformis* n. sp., ein neuer parasitischer Nematode aus dem Nandu, *Rhea americana* L." **43** (4), 647-652.

(380a) Dubois presents a new and elaborate classification of the Strigeida, based on the principles laid down in Poche's " System der Platodaria " and taking into consideration the factor of host-specificity. There is space here only for a list of the proposed categories (with their suffixes): Super-superfamily (–ida), Superfamily (–ides), Subsuperfamily (–ines), Family (–idae), Supersubfamily (–idi), Subfamily (–inae), Subsubfamily (–ini).

The following new genera and species are included: *Pseudapatemon* n. g., *Ornithodiplostomum* n. g., *Mesoophorodiplostomum* n. g., *Posthodiplostomum* n. g. including *P. microsicya* n. sp., *Lophosicyadiplostomum saturnium* n. g., n. sp., *Sphincterodiplostomum musculosum* n. g., n. sp., *Prodiplostomum americanum* n. sp., *Fibricola minor* n. sp., *Cynodiplostomum* n. g., *Proterodiplostomum* n. g. including *P. tumidulum* n. sp., *Mesodiplostomum gladiolum* n. g., n. sp., *Pseudoncodiplostomum* n. g., *Herpetodiplostomum* n. g. including *H. testudinis* n. sp., *Prolecithodiplostomum constrictum* n. g., n. sp., *P. cavum* n. sp., *Cystodiplostomum hollyi* n. g., n. sp., *Ophiodiplostomum spectabile* n. g., n. sp., *Petalodiplostomum ancyloides* n. g., n. sp. and *Heterodiplostomum lanceolatum* n. g., n. sp. B.G.P.

(380b) This is an abbreviated form of the full, illustrated description given elsewhere [see Helm. Abs., Vol. V, No. 90b].

(380c) Discussing schizogony (asexual reproduction by budding) among the Cestodes, Baer inclines to the view that a cestode is a monozoic, not a polyzoic, organism, the whole strobila representing one individual. Cestodes can be graded in a series according to the state of the terminal segments at the time of detachment. In only a few species are the terminal segments " hyperapolytic," separating before the genital organs have matured, and only these species can properly be held to show schizogony. The bearing of Child's theories of " Metabolic Gradients " and " Polarity " in organisms upon cestode strobilation is discussed. B.G.P.

(380d) Amongst a collection of fresh-water nematodes from three lakes in the vicinity of Madras, Kreis describes and figures two new forms, namely, *Actinolaimus neocyatholaimus* n. sp., and *Bathyonchus indicus* n. g., n. sp. A single female only of each was found. T.G.

381—Riforma Medica.

a. PUTZU, F., 1936.—" L'echinococcosi in Italia." **52** (20), 672-676.
b. BOLOGNESI, G., 1936.—" Rottura spontanea di una ciste idatidea epatica nel duodeno. Lezione clinica e ricordi di patologia." **52** (28), 951-957.

(381a) Putzu discusses the distribution of hydatid in Italy, gives a table showing the location of the cyst, by organs, in 391 cases from Sardinia, and appends a fairly full bibliography of Italian references. B.G.P.

382—Rinascenza Medica.

a. CICCHITTO, A. M., 1936.—" Contributo alla conoscenza della distomatosi epatica umana da *Fasciola hepatica*." **13** (2), 47-48.

(382a) Cicchitto reports the second case in Italian Somaliland of human Fascioliasis hepatica. The summary (but not the article) refers to *Limnaea natalensis* as a possible local intermediary. B.G.P.

383—Schweizer Archiv für Tierheilkunde.

a. RUBLI, H., 1936.—" Trichinose beim Sumpfbiber, *Myocastor coypus* Mol." **78** (9), 420-424.

(383a) Rubli explains how an outbreak of trichinelliasis in five persons belonging to a fur-farming family was traced to the eating of infected flesh of the coypu. Trichinella larvae were found in the musculature of the coypu in three cases. Trichinella inspection is therefore essential before such animals are eaten by man. B.G.P.

384—Science.

a. STILES, C. W., 1936.—" Opinions rendered by the International Commission on Zoological Nomenclature." **84** (2186), 459-460.

(384a) " Opinion 124.—The various Subdivisions of genera published by Linnaeus in 1758 are not to be accepted as of this date (1758) as of subgeneric value under the International Rules." R.T.L.

385—Science Reports of the Tokyo Bunrika Daigaku. Section B.

a. KOBA, K., 1936.—" Revision of the specific name of a crab as a second intermediate host of *Paragonimus westermani* in Formosa." **2**, 201-207.

(385a) An examination of Nakagawa's original species of *Potamon* (*Goetelphusa*) *obtusipes* reported by him as a vector of Paragonimiasis in Formosa has led Koba to the conclusion that this species should have been identified as *Potamon* (*Potamon*) *rathbuni* de Man. This crab is usually found in the mountain streams of the Sintiku District of Formosa. R.T.L.

386—Scottish Journal of Agriculture.

a. ROBERTSON, D., 1936.—" The control of the lesser stomach worm in sheep." **19** (4), 359-363.

(386a) Infections of *Ostertagia* spp. in lambs are unaffected by repeated dosage with copper sulphate and nicotine sulphate, carbon tetrachloride, and arsenic and copper sulphate, given in capsule or tablet. Greater reliance should be placed on the use of concentrates than on anthelmintics. In autumn, lambs are rendered more susceptible to parasitic infection by the low nutritive value of pastures. R.T.L.

387—South African Medical Journal.

a. MÖNNIG, H. O., 1936.—" The importance of parasites to medical and veterinary science in South Africa. Animal parasites." **10** (20), 689-691.
b. GIRDWOOD, R. L., 1936.—" The importance of parasites in medical and veterinary science in South Africa." **10** (20), 691-695.
c. CAWSTON, F. G., 1936.—" Bilharzia infection in blind lagoons." **10** (20), 698-699.
d. OSBURN, H. S., 1936.—" Hookworm in Natal natives." **10** (20), 710-712.

(387a) Mönnig in this paper on animal parasites deals with the three helminthic parasites which he considers are of great economic importance to S. Africa. *Haemonchus contortus* and *Oesophagostomum columbianum* of sheep may now be treated with a large measure of success, but measles of pigs and cattle presents great control difficulties. It is suggested that the insurance of stock against measles be disallowed, so leaving the loss by condemnation to the owner, and that co-operation should be established with the medical profession in the control of this disease by treatment of man as carrier and by the judicious disposal of sewage. J.W.G.L.

(387b) Girdwood deals with the clinical side of the diseases due to parasites in man in S. Africa and gives a description of three cases of hydatid. Hookworm disease is mostly confined to the Rand and is limited principally to the mining classes. J.W.G.L.

(387c) Cawston reports the presence of living *Physopsis africana* in a small lagoon on the Natal coast near Krugersdorp into which sea-water only entered at high tide. R.T.L.

(387d) From a routine " Willis " examination of the stools of 199 patients admitted to the McCord Zulu hospital in Durban, Osburn has ascertained that 15% had hookworm, 56·5% contained the eggs of other helminths, viz., Ascaris in 21·5%, *Trichuris trichiura* in 46% and Taenia in 6%. Only 5 out of 30 cases of hookworm gave a clinical history of ground itch. A map shows the distribution of hookworm infestation in 19 cases. In the absence of other diseases hookworm apparently causes no ill effect in the native male population. R.T.L.

388—Taiwan Igakkai Zasshi.

a. NISHI, M., 1936.—" A biological investigation on the family Ancylostomidae. With special reference to the results of an experimental investigation into the rate of infection, immunity and the site of parasitism within the lumen of the alimentary tract." **35** (12), 2744-2760. [In Japanese: English summary pp. 2760-2761.]

(388a) Experimental infection of dogs with *Ancylostoma caninum* larvae gave an infection rate of 51·8% to 12·4%, with an average of 34·6% when the larvae were administered by the mouth. On reinfection after an

interval of 37 to 88 days the rate was found to be 30·53%, but when reinfection was repeated 2 or 3 times at 24 hour intervals after a period of 2 to 9 days the rate fell to 22·04%. The rate of infestation dropped with the age and weight of the dogs. It is stated that the parasites were found in the caecum in 26 out of 44 dogs but in some cases harbouring several hundred hookworms in the small intestine none were found in the large intestine, whereas others with few in the small intestine had hookworms also in the large intestine. The ratio of male to female worms was 1 to 1·15. The females were more abundant in the upper portion of the gut. R.T.L.

389—Tijdschrift voor Diergeneeskunde.

a. SLOOTEN, J. P. VAN DER, 1936.—" De beoordeeling van runderen met cysticercose, in verband met de levensvatbaarheid van den parasiet." **63** (19), 1102-1103.
b. TENHAEFF, C. & FERWERDA, S., 1936.—" Een geval von Taenia echinococcus bij den heemhond." **63** (24), 1400-1405.

(389a) The author doubts whether the so-called predilection sites of cysticerci are indeed such, since the remaining musculature has not been sufficiently examined on account of its value. The viability of cysticerci found in such sites is used as an indication of the state of those in other parts of the carcass. A cysticercus should not be taken as dead unless it is calcified, and calcified cysts should be closely examined, since they may contain live cysticerci in addition to the calcareous body. At least 10 days freezing at −10°C. is necessary to kill cysticerci in meat; cooling at not over 4°C. for three weeks is insufficient. H.M.

(389b) [A case of *Taenia echinococcus* in a house-dog.]

390—Transactions of the American Microscopical Society.

a. TAYLOR, A. L., 1936.—" The genera and species of the Criconematinae, a sub-family of the Anguillulinidae (Nematoda)." **55** (4), 391-421.
b. MUELLER, J. F., 1936.—" New Gyrodactyloid trematodes from North American fishes." **55** (4), 457-464.
c. WOODHEAD, A. E., 1936.—" A study of the gasterostome cercariae of the Huron River." **55** (4), 465-476.
d. PARK, J. T., 1936.—" Two new trematodes, *Sterrhurus magnatestis* and *Tubulovesicula californica* (Hemiuridae) from littoral fishes of Dillon's Beach, California." **55** (4), 477-482.
e. SIZEMORE, P. D., 1936.—" *Cercaria concavocorpa* n. sp." **55** (4), 483-486.
f. SIZEMORE, P. D., 1936.—" Note on *Heronimus chelydrae* MacCallum." **55** (4), 487.
g. HART, J. F., 1936.—" Cestoda from fishes of Puget Sound. III. Phyllobothrioidea." **55** (4), 488-496.
h. McMULLEN, D. B., 1936.—" A note on the staining of the excretory system of trematodes." **55** (4), 513-515.

(390a) Taylor erects a new nematode sub-family, Criconematinae, and gives a systematic account of the genera included therein, namely *Paratylenchus*, *Procriconema*, *Criconemoides* and *Criconema*. Of these *Criconemoides* is a new genus. A key to the species of each genus is given and

there are brief descriptions of all the species together with their dimensions. The following species are described for the first time: *Criconemoides annulatum* Cobb, *C. macrodorum* n. sp., *C. mutabile* n. sp., *C. sphaerocephalum* n. sp., *Criconema fimbriatum* Cobb, and *C. inaequale* n. sp. The paper is well illustrated with line drawings. T.G.

(390b) Mueller describes and figures the following new gyrodactyloid forms from fish: *Lepidotes collinsi* n. sp., *Aristocleidus hastatus* n. g., n. sp., *Onchocleidus formosus* n. sp. (possibly synonymous with *Cleidodiscus vancleavei* Mizelle, 1936), *Cleidodiscus floridanus* n. sp., and *C. pricei* n. sp. B.G.P.

(390c) Woodhead gives illustrated descriptions of the five species of gasterostome cercariae discharged from bivalves in the Huron river. The flame-cell patterns receive particular attention. B.G.P.

(390f) Sizemore found that the fluke *Heronimus chelydrae* is smaller but more numerous in undersized *Chelydra serpentina* than in fully grown turtles. The incidence also decreases with the increasing size of the host. B.G.P.

(390g) Hart describes and figures *Phyllobothrium magnum* n. sp. from *Somniosus microcephalus*, and *Echeneibothrium myzorhynchum* n. sp. from *Raja binoculata*—which is also a new host for *Acanthobothrium dujardinii*. *Onchobothrium pinguicollum* Sleggs, is transferred to *Pedibothrium*. B.G.P.

(390h) McMullen gives details of a mercury-precipitate method of rendering visible the excretory system of bird trematodes. Specimens were flattened, fixed in warm Gilson's fluid, and stored in Gilson's for 11 months. Nerve cells, and tubules which may represent a lymph system were made visible in addition to the excretory tubules. B.G.P.

391—Transactions of the Royal Society of Tropical Medicine and Hygiene.

a. MILLS, E. A., MacHATTIE, C. & CHADWICK, C. R., 1936.—"*Schistosoma haematobium* and its life cycle in Iraq." **30** (3), 317-334.

b. LOVETT-CAMPBELL, A. C. & ROSE, A. W., 1936.—"Bilharzial appendicitis in *Schistosoma haematobium* infestations. A preliminary report." **30** (3), 335-344.

(391a) After reviewing previous work on the vectors of *Schistosoma haematobium* and the extent of infection in Iraq, the authors give an account of their own investigations which show that the only vector in that region is *Bulinus truncatus* vars. *contortus*, *dybowskii* and *innesi*. The cercariae emerge from naturally infected snails between 10.30 a.m. and 11.30 a.m. even if the snails are kept in the dark. In the hottest period of the year the cercariae apparently live for less than 24 hours. Comparatively few emerge during the colder weather and none in the winter. White mice, but not guinea-pigs, were experimentally infected from snails naturally infected and from others infected in the laboratory from urine from cases of bilharzia. Non-mammalian furcocercous cercariae were found in *Melanoides tuberculata* and in *Melanopsis nodosa*. *Limnaea tenera euphratica* were not found infected in the endemic regions. From December to May *Bulinus* snails disappear from the ditches and the risk of infection is then almost negligible. This explains the relative immunity of snipe and duck shooters. R.T.L.

392—Travaux de l'Institut Zoologique de l'Académie des Sciences de l'URSS.

a. FILIPJEV, I. N., 1936.— "Ueber freilebende und pflanzenparasitische Gattungen der Tylenchinen." **3**, 537-550. [In Russian and German.]

(392a) Following a general account of the morphology of the genera comprising the Tylenchinae, Filipjev sets out a classification of this sub-family which is practically identical with that which he has recently given in Proc. Helm. Soc. Wash., 3 (2), 80-82 [see Helm. Abs., Vol. V, No. 241u]. The paper is illustrated with seventeen figures. T.G.

393—Verhandlungen der Deutschen Zoologischen Gesellschaft. (Published as Zoologischer Anzeiger, 9. Supplementband.)

a. MATTES, O., 1936.—"Zur Frage der Wirtsauffindung der Parasiten auf Grund experimenteller Untersuchungen an Leberegelmiracidien." 38th Year, 183-186.

b. WETZEL, R., 1936.—"Neuere Ergebnisse über die Entwicklung von Hühnerbandwürmern." 38th Year, 195-200.

(393a) Mattes' experiments show that there is no evidence of chemotaxis in the finding of the intermediary by *Fasciola hepatica* miracidia. They appear to reject hard bodies, such as stones, on the basis of texture. Soft-bodied animals, such as earthworms, planarians, or Hydra, are attacked repeatedly until the miracidium dies of exhaustion or is paralysed by the defence mechanisms of the planarians or polyps. It is in the attacks on *Limnaea truncatula*, which are alone successful, that the specific factor first enters, possibly in the form of a suitable texture of the snail's epidermis and perhaps a specific histolytic ferment. Thus the finding of the intermediary is a random process, aided only by the miracidium's habit of darting erratically from place to place. B.G.P.

(393b) Wetzel summarizes the life histories of certain fowl cestodes in the light of recent knowledge. P.A.C.

394—Verhandlungen der Naturforschenden Gesellschaft in Basel.

a. KREIS, H. A., 1936.—"Beiträge zur Kenntnis parasitischer Nematoden. II. *Dirofilaria immitis* (Leidy 1856) (Filariinae Stiles 1907; Filarioidea Weinland 1858; Stiles 1907)." **47**, 60-66.

(394a) Kreis gives an illustrated redescription of *Dirofilaria immitis*, with a short discussion on its life-history, including the question of periodicity. B.G.P.

395—Veterinarski Arhiv.

a. DEBELIĆ, Š., 1936.—"Distomatoza i iskorišćivanje mesa." **6** (7), 317-321. [German summary p. 321.]

b. MIKAČIĆ, D., 1936.—"Prilog poznavanju parazita debelog crijeva konja." **6** (7), 347-360. [German summary pp. 360-361.]

c. DEBELIĆ, Š., 1936.—"Cisticerkoza i trihinoza kod zaklanih svinja." **6** (8), 410-416. [German summary p. 416.]

d. MIKAČIĆ, D., 1936.—"Entoparazitička fauna konja Savske banovine." **6** (12), 529-545. [German summary pp. 545-546.]

(395a) Of 10,000 cattle examined in the Zagreb area for liver-fluke, 90% were infected. Confiscation of infected livers involved an average loss of 3·21 kg. per liver, while carcasses of infected animals were estimated to weigh 5·3 kg. less than those of uninfected. B.G.P.

(395b) Mikačić adds five more helminths to his previous list of parasites of the large intestine of the horse in Yugoslavia. He records the presence of teeth in the oesophageal funnel of all the specimens of *Trichonema labratum* and in some of those of *T. labiatum*. The same applies to *T. barbatum* and because of this predisposition of Strongylidae to teeth formation he considers *T. barbatum* to be a synonym of *T. calicatum*. J.W.G.L.

(395c) Debelić states that cysticercosis is relatively common in pigs in Yugoslavia, especially in the southern districts. Only 12 cases of trichinosis, however, have appeared during the past four years among 321,468 pigs examined. B.G.P.

(395d) Mikačić reports on the internal parasites found by dissecting 100 horses from the environs of Zagreb. He excludes the parasites of the large intestine which he has dealt with elsewhere [see 395b, above]. His records include *Fasciola hepatica* (in 12 horses), tapeworms, *Onchocerca cervicalis* (in 62), Setaria, Habronema, and other helminths. A table shows the individual infections of the 100 horses, the 12 species of helminths being grouped under infected organs. B.G.P.

396—Veterinary Extension Quarterly. University of Pennsylvania Bulletin.

a. STUBBS, E. L. & LIVE, I., 1936.—" Methods of diagnosing filariasis in dogs." **36** (61), 11-15.

(396a) Stubbs & Live find that microfilariae in dog's blood are more easily detected if the blood is allowed to clot, when the microfilariae pass into the serum. If desired, the serum can be centrifuged. Microfilariae remain alive in serum for 9 to 15 days in a refrigerator at 8°C., but for less than two days at room temperature. B.G.P.

397—Welsh Journal of Agriculture.

a. DAVIES, T. I., 1936.—" The gapeworm problem." **12**, 205-209.

(397a) In reviewing the recent publications on gapeworm disease, Davies stresses the importance of starlings as distributors of the disease and earthworms as reservoirs. The use of the intermediate host has been shown to overcome the difficulties of transference due to physiological specialization among strains of *Syngamus trachea*. P.A.C.

398—World's Poultry Congress (6th). Report of Proceedings.

a. WETZEL, R., 1936.—" Untersuchungen über die deutsche Zwischenwirtfauna der häufigsten Hühnerbandwürmer." II, 177-180.

(398a) Wetzel here considers some of the more frequent cestodes of the domestic fowl and briefly considers the life history with particular reference to the intermediate hosts. P.A.C.

399—Zeitschrift für Fleisch- und Milchhygiene.

a. ASSMANN, G. A., 1936.—" Die volkswirtschaftliche Bedeutung der Rinderfinne." **46** (24), 477-479.
b. HOEFNAGEL, K., 1936.—" Die Geschichte der Fleischbeschau in der Stadt Utrecht." **47** (5), 91-92.
c. STROH, G., 1936.—" Muskelfinnen bei Rehen (*Cysticercus capreoli*)." **47** (6), 113-114.
d. GRÜNDLER, 1936.—" Ein Fall von Finnen beim Reh." **47** (6), 114.

(399a) Assmann points out that a measure of the economic loss due to cysticercosis in cattle is given by the amounts paid out by Insurance companies by way of compensation. He gives data for the four years 1932-1935, apparently for Saxony, showing a total of RM. 850,000 paid out over that period. For the whole of Germany the figure probably runs into seven figures (Marks) annually. Assmann claims that a more complete control is contingent upon close co-operation with veterinarians on the part of medical practitioners. B.G.P.

(399b) Hoefnagel briefly recounts the history of meat-inspection in Utrecht, from the Middle Ages, when there was a guild of meat-inspectors, until the present day. The account touches upon cysticercosis in pigs and fascioliasis in sheep. B.G.P.

400—Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere.

a. DRÄGER, W., 1936.—" 10 Jahre Echinokokkenbekämpfung in Neuvorpommern." **50** (1), 3-17.

(400a) Dräger marshalls statistics to show that considerable success has attended the efforts to control hydatid, during the past decade, in Neuvorpommern [i.e. north-western Pomerania]. Still more would be achieved if *all* slaughtered animals were subject to meat inspection, and if the general public and the hunting community were enlightened by suitable propaganda. Dräger commends the system used in Holland whereby infected organs from small and remote slaughter houses are collected in special containers and destroyed; and he finds much to be learned from the control measures instituted by Krabbe in Iceland, where all dogs are systematically treated. B.G.P.

401—Zeitschrift für Krebsforschung.

a. SCHMIDT-LANGE, W., 1936.—" Trichinose und Krebs." **43**, 264-271.

(401a) From examination of a liver sarcoma, with a metastasis in the spleen, in a white mouse which had been experimentally infected with Trichinella, Schmidt-Lange concludes that Trichinella must be considered as a possible aetiological factor in cancers of this type. B.G.P.

402—Zeitschrift für Morphologie und Ökologie der Tiere.

a. REICHMUTH, W., 1936.—" Die Leberegelschnecke *Galba truncatula* Müll. Zugleich ein Beitrag zur Systematik der Süsswasserschneckenfamilie Lymnaeidae." **31** (2), 207-244.

(402a) In this detailed paper on the liver-fluke snail, commonly known as *Limnaea truncatula*, Reichmuth is mainly concerned to establish the identity of *L. palustris* as a distinct species. The two species have been considered as one and the same by some (e.g. Brockmeier) and as falling into separate genera or subgenera (*Galba* and *Stagnicola*) by others. Reichmuth shows on anatomical grounds that they are distinct species, and he regards them as congeneric. What is of greater helminthological importance, he finds that *L. palustris* can act as an efficient intermediary for *Fasciola hepatica*. Of 50 laboratory-bred *L. palustris* exposed to infection, 8 died, 16 contained developed cercariae and 11 contained rediae with daughter-rediae when examined two to three months after infection. B.G.P.

403—Zeitschrift für Parasitenkunde.

a. SZIDAT, L., 1936.—" Über die Entwicklungsgeschichte und den ersten Zwischenwirt von *Paramphistomum cervi* Zeder 1790 aus dem Magen von Wiederkäuern." **9** (1), 1-19.

b. CHUNG, H. L., 1936.—" Observations on the filariform larvae of *Strongyloides fülleborni* in different media as well as in tissue cultures." **9** (1), 28-49.

c. CHAKRAVARTY, G. K., 1936.—" *Dirofilaria indica* n. sp. from the heart of a dog." **9** (1), 57-60.

(403a) Szidat has shown, by feeding cercariae obtained from *Planorbis planorbis* to sheep, that this mollusc is the intermediary for the European form of *Paramphistomum cervi*. Eggs develop in water in from 17 days to three weeks at 15° to 24°C. Szidat has not infected snails with the miracidia, but in naturally infected snails he has found no daughter-rediae. As in related species, cercariae escape from the redia before they are mature. There is no evidence that young flukes migrate into the body cavity: the cysts appear to hatch in the duodenum and the flukes to pass back into the stomach. Szidat suggests some revision of the classification of fascioloid trematodes, involving a new Suborder PARAMPHISTOMATA (Paramphistomidae, Angiodictyidae, Mesometridae and Notocotylidae) belonging to a new Order FASCIOLATOIDEA which is " yet to be erected." B.G.P.

(403b) Chung gives with several tables results of a detailed study of the behaviour of larvae of *Strongyloides fülleborni* and of *Ascaris lumbricoides* in different media. A useful technique for obtaining sterile larvae is described. Some slight changes in size were noted in various media but no developmental changes occurred. R.T.L.

(403c) A new species *Dirofilaria indica* is described from the heart of a dog in Calcutta. It possesses a large median ventral preanal papilla, whereas in *D. immitis* this is placed on one side. The large papillae in *D. indica* are longish and blunt instead of being conical and the number of small postanal papillae which in *D. immitis* is variable is constant in *D. indica*. The large spicule measures 385 μ and the small one 165 μ. A tabular statement contrasts the new species with *D. immitis*, *D. magalhaesi* and *D. pongoi*. R.T.L.

404—Zeitschrift für Zellforschung und Mikroskopische Anatomie.

a. SCHMIDT, W. I., 1936.—" Doppelbrechung und Feinbau der Eischale von *Ascaris megalocephala*. Ein Vergleich des Feinbaues faserigen und filmartigen Chitins." **25** (2), 181-203.

(404a) Schmidt describes and illustrates the fine structure of the *Ascaris megalocephala* egg shell, as revealed by polarized light. The egg shell is optically monaxial with the axis directed radially. He contrasts the optical properties of this material with those of arthropod chitin, and their modification by various chemical and physical agents. B.G.P.

405—Zentralblatt für Chirurgie.

a. RUCKENSTEINER, E., 1936.—" Zur Kenntnis des Röntgenbildes massenhaft auftretender Spulwürmer." **63** (6), 321-323.
b. MELCHIOR, E., 1936.—" Oxyuren als Wundparasiten." **63** (7), 379-381.
c. HOCHE, O., 1936.—" Einige bemerkenswerte Fälle von Echinococcuserkrankungen mit verschiedener Lokalisation." **63** (9), 502-507.
d. HOCHE, O., 1936.—" Weitere Beobachtungen von Echinococcuscysten mit seltener Lokalisation." **63** (27), 1589-1592.

406—Zoologische Jahrbücher. Abteilung für Allgemeine Zoologie und Physiologie der Tiere.

a. KRÜGER, F., 1936.—" Untersuchungen zur Kenntnis des aeroben und anaeroben Stoffwechsels des Schweinespulwurmes (*Ascaris suilla*)." **57** (1), 1-56.

(406a) Krüger has carried out experiments *in vitro* on the metabolism of *Ascaris suilla*. When the O_2 tension was kept constant the consumption of O_2 was fairly steady for the first 3 to 4 days and then, so long as the animals were in the fasting condition, began to decrease. The production of CO_2 fluctuated widely during the first few days, after which a respiratory quotient of unity was maintained. The skin was shown to be the chief centre of gaseous metabolism, its respiratory activity immediately after isolation approaching that of the whole body. Increase in the O_2 tension produced a corresponding increase in O_2 consumption and a slight increase in CO_2 liberation. Under anaerobic conditions the yield of fatty acids remained fairly constant after the second day, whereas in the presence of air the yield decreased continuously. The fatty acids were shown to be chiefly valeric and caproic acids and evidence is presented indicating that these were not formed directly from carbohydrates. Spectroscopic examination of the hypodermis of *Ascaris* revealed the presence of haemoglobin. R.H.H.

407—Zoologischer Anzeiger.

a. SZIDAT, U., 1936.—" Über eine neue Echinostomidencercarie, *Echinocercaria choanophila* n. sp." **116** (11/12), 304-310.

NON-PERIODICAL LITERATURE.

408—BURKHARDT, J., 1936.—" Über Rotenon und seine anthelminthische Wirkung bei Hunden." Inaugural Dissertation, Leipzig, 31 pp.

Burkhardt discusses the nature and preparation of Rotenon, the active principle of Derris root, briefly surveys the literature of its use as an insecticide and of its toxicological action, and gives an account of his own experiments using it as an anthelmintic in dogs. He concludes that its known lethal action on fish and insects does not extend to helminths, although dogs will support a dose of 1 g. per kg. body-weight without ill-effects.

B.G.P.

409—HALL, M. C., 1936.—" Control of animal parasites. General principles and their application." Evanston, U.S.A., 162 pp.

Hall has in recent years published several articles dealing with the control of given parasites, but conceived and written in terms of military strategy and tactics. The present book first deals with the principles of these and then proceeds with their application to a number of common parasites. Hall states that the principles of warfare " Are often as applicable in a war on parasites as in a war between nations ". As he admits, " All the parallels between human warfare and war on parasites cannot be drawn with equal closeness." Thus : " Surprise is valuable in human warfare but not, as a rule, in war on parasites ; it may be of value in attacks on certain external parasites ". But, " In general, the principles stand ". B.G.P.

410—JOYEUX, C. & BAER, J. G., 1936.—" Faune de France. 30. Cestodes." Paris, 613 pp.

In this cestode monograph of 613 pages, Joyeux & Baer, in the earlier chapters, deal with technique, general morphology, general anatomy, development and diagnosis. There are formal descriptions of the Orders, Sub-orders, Families, Sub-families and Genera to which the species represented in France belong. There follow under vertebrate hosts, arranged in their systematic order, succinct descriptions of the various species of tapeworms, adult and larval, with differential tables in those cases where more than one species of a genus is represented. The cestodes of invertebrates are dealt with in a separate chapter. The volume concludes with a host list. R.T.L.

411—LAMSON, P. D., 1936.—" Ten years' experience with anthelmintics." In : Medical papers dedicated to Henry Asbury Christian in honor of his sixtieth birthday, pp. 771-784.

Lamson considers tetrachlorethylene to be a safe and efficient remedy for uncomplicated cases of hookworm disease, but due to its stimulating effect on ascaris, it cannot be used in the many cases of this disease in which ascaris are also present. The Pharmacological Department of Vanderbilt University therefore attempted to find a safe ascaricide and for this purpose studied the action of a large number of phenols *in vitro*. Of these hexylresorcinol was found to be amazingly efficient *in vitro*, and after the administration of single doses. The only disadvantage that has yet been found

with hexylresorcinol is its local irritant action in the mouth. This is overcome by administering it in gelatine coated pills. Many closely related alkylphenols were studied and it was found that their vermicidal action depends on the presence of an intact hydroxyl, their water solubility, and their melting point. Lamson considers that equally good results may be obtained by using several doses of some of these which, although less efficient than hexylresorcinol, are cheaper and less irritating. K.S.

412—PAPE, H., 1936.—"Die Praxis der Bekämpfung von Krankheiten und Schädlingen der Zierpflanzen." Berlin, 427 pp.

The second edition of Pape's book on diseases of ornamental plants is divided into two main parts. The first (pp. 1–51) deals with the control of diseases in general including cultural measures and special technical methods such as spraying and disinfection, etc. The second part (pp. 53–403) covers diseases due to bacteria, fungi, insects and nematodes. The latter are dealt with as parasites of (i) roots, e.g., *Heterodera marioni* and (ii) stem structures, e.g., *Anguillulina dipsaci* and species of *Aphelenchoides*. The bulk of this part of the work (pp. 124–403) is occupied with short accounts of the numerous diseases of ornamentals due to various parasitic agents including nematodes, and the material is arranged alphabetically according to the plant names. Symptoms are described and for remedial measures the reader is referred to the earlier part of the work where these are detailed. There are numerous photographs and the book is well indexed. T.G.